Textile World

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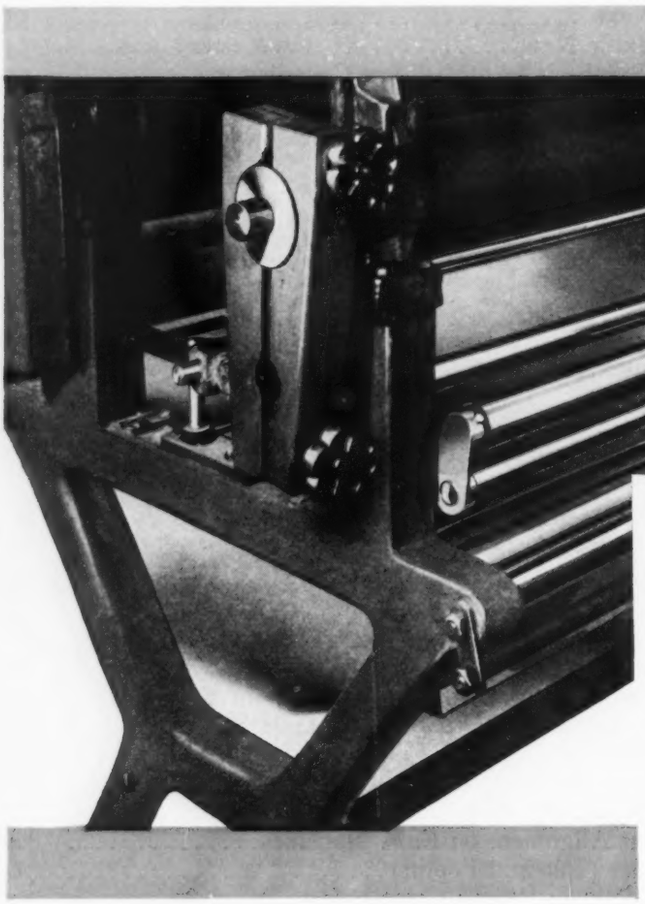
Small Lots

DEMAND FLEXIBLE EQUIPMENT



a quick flush and the ENDURO dye jig is invitingly clean ... ready for another color

With the trend toward small lots, the dye shop is faced with a serious problem, unless it has easy-to-clean, *flexible* equipment. Let's quote a prominent dyer on this subject: "We must make efficient use of our limited floor space in order to keep equipment investment down and profits up. With an increasing number of small lots, our dyeing equipment must be flexible, so that dyes of different colors can be run in quick succession in the same machine. Our stainless ENDURO dye jigs give us this flexibility, for they are not attacked or discolored by any of the dyes, they clean thoroughly with only a simple flushing, and there never is any danger of spotted goods and re-dye costs. Even when we're rushed with these small lots, we get the work out as though we had tanks set aside for each color." And there are many more reasons why this permanent metal is being so rapidly adopted by the textile industry. Ask Department TW to send you the complete story on stainless, easy-to-clean ENDURO.

REPUBLIC STEEL

ENDURO
REPUBLIC'S PERFECTED
STAINLESS STEEL

Republic Steel CORPORATION

ALLOY STEEL DIVISION, MASSILLON, OHIO
GENERAL OFFICES: CLEVELAND, OHIO

Textile World

August, 1936

▼

Editor: DOUGLAS G. WOOLF

The Answer Is Easy

WHAT is this thing called industrial relations? This question bothered us as we listened to the many excellent talks at the Southern Conference on Human Relations in Industry at Blue Ridge, N. C., last month.

Such a conference itself does not supply the answer. In fact, there are inevitably so many points of view presented there that, to us at least, the basic problem becomes more obscure with each address. One man thinks credit unions will build sound industrial relations; another recommends home-ownership; still another outlines a plan for more or less informal employee representation. All perfectly good ideas, but do they touch the fundamentals? And what are the fundamentals?

The difficulty is that the needs of a particular period are apt to be mistaken for basic requirements in industrial relations. For example, when the first southern cotton mills were being established, the need was for the creation of a surrounding community. That need dominated the southern industry for years, and was a social force of tremendous proportions, but any broad-minded southern manufacturer will tell you today that community activities are only a part of, and not the fundamental phase of, industrial relations.

Similarly, after the World War, the immediate need was for so-called "welfare" plans which would enable one manufacturer to compete against another for help during that stringent labor scarcity. Some good came out of that episode—and some bunk of course—but actually there was little real contribution to the solution of the basic problem.

So, once again, what is that basic problem?

It is, as real students of industrial relations know, but too often forget, the question of remuneration. What the worker is interested in is his income: its amount and its stability.

In that he doesn't differ from any of us. We all like to have Saturday off, of course; we get a kick out of being invited to play golf with the boss, and it's flattering to be asked to serve on some company committee, but the real thing we want the organization to do for us is to enable us to maintain our family in the way we think desirable, and to offer some reasonable assurance that such a basis will be continued. Honestly, now, isn't that so? And that goes for practically everybody.

So that's the real problem of industrial relations. How should it be tackled?

Well, the cotton textile industry did more to tackle it during the last five or ten years than it has ever done before, within our memory. The 55-50 plan, the move to eliminate night-work for women and minors, Code No. 1 with its minimum wages and maximum hours, were all concrete and highly practical attacks on the fundamentals. Never before, at least so far as we can recall, has that sort of job been undertaken by this industry cooperatively.

That is why we are so insistent that this job must not and can not be dropped. Our conviction that it represents the basic problem in a decentralized industry, where the labor factor in cost represents the principal element of competition, is so firm that we are obliged to keep it constantly at the editorial mast-head.

Fortunately, this truth is recognized by a steadily increasing number of textile manufacturers. That was the thought Robert West had in mind, for example, when he told the Southern Textile Association that a stable wage structure is a primary consideration of proper manufacturing conditions.

Primary for both employer and employee, as a matter of fact, and therefore the primary element, the basic necessity, in industrial relations.

The Editor Says:

Arthur Besse Tells 'Em

WE hope it will never be necessary for us to get into a real argument with Arthur Besse, president of the National Association of Wool Manufacturers. He's too good. His letter replying to the "demands" made by Anthony Valente, national secretary-treasurer of the Federation of Woolen & Worsted Workers of America, was a marvel as a courteous, logical and devastating retort.

It is in his answer to the demand for recognition of the local unions of the Federation that Mr. Besse is most unkind to Mr. Valente. Pointing out that in December 1935 the Bureau of Labor Statistics estimated that only 12.4% of the employees covered in the woolen and worsted industry were represented by trade unions, he states that his information indicates that the present membership is an even smaller proportion of the total employees. "If you had any constructive plan you would find a quite different attitude," he concludes. . . . "Because of this I am constrained to question your sincerity and to conclude that your solicitude is not for the employees at all but springs merely from a desire to secure more dues-paying members for your Federation."

This is the answer that must be given again and again to the U. T. W. and its affiliates. Representing only a negligible percentage of the textile workers of the country, it nevertheless continually tries to force itself upon the industry as the mouth-piece for the employees.

Mr. Valente, in his letter, chides the association for not dealing with the labor problem and terms the latter "the biggest factor in determining the costability in the industry." Well, we can't deny that, since we say practically the same thing on the preceding page. [We want it understood, however, that, in making this admission, we are not endorsing the word "costability"!]

The only difference is that Mr. Valente seems to think that, since the labor factor is so important, the industry should be willing to negotiate on this phase with any organization which feels like writing a letter.

That method of thinking is a good old U. T. W. custom.

■

Still On the Up and Up

THE strength of the general business picture continues to be impressive. So too does that of the textile situation, with certain exceptions.

In the cotton division, particularly, the activity has been remarkable. June, for instance, was probably a record month for sales volume—at least for a normal period, and excepting possibly only the abnormal pre-NRA speculative boom.

Rayon yarn—another strong spot—moves steadily into the scarcity zone, and there is evidence that the industry is *under*-capacitated—a description which we thought we might never hear again in connection with textiles!

And this is supposedly the off-year in the textile cycle! The answer is not that the cyclical theory has broken down, but that we have moved up out of the depression on to higher ground.

Over-optimism is still unwise. Textiles are not going to move automatically and painlessly into a profitable era. Many problems continue to confront the industry. Nevertheless, it is heartening to realize that the company which keeps itself physically and psychologically in shape, has a better chance for net income than has been the case for some time. And that's all any textile manufacturer, with the memory of the past years still fresh, ought to be bold enough to ask!

■

Amoskeag

IT'S premature to write an obituary of the Amoskeag Mfg. Co. until it is buried. It has remarkable tenacity for a company which was born in 1804 and which has been counted out many times in the last several years. However, its present predicament seems to have the earmarks of finality—and one can tentatively offer condolences.

Certainly, the passing of this company will bring a feeling of sadness to all to whom tradition and background mean anything. To the people of Manchester, whose lives have been entwined with the affairs of Amoskeag for over a century, the development spells tragedy.

It would be helpful if, from its fall, we could draw a moral which might be applied to the rest of the industry. That is not easy. The more we come into contact with corporate affairs, the more we are convinced that the outside observer knows only part of the real story. The rest of his "knowledge" is necessarily made up of rumor, surmise and half-truth.

There is one general statement about Amoskeag that can be made, however. The predicament in which it has found itself for 10 or 15 years is essentially the predicament of the industry. New conditions, new demands, new fibers, new styles, a new manufacturing section, have beaten mercilessly against the strongholds of the past. It has not been easy for a company to build its defenses quickly enough. Too often, it has failed to realize that a strong offense was the only real defense.

All this was particularly difficult for a tremendous company such as Amoskeag. Smaller concerns could whip themselves into line; the inertia of size placed the larger ones at a serious disadvantage. We have preached the doctrine "Shrink and Sell" in these columns during the long hard years through which the industry has just passed. That doctrine has been followed by many concerns which have climbed up out of receivership to corporate health. Amoskeag might have been able to have done so also, if the start had been made in time. That it was not is no particular reflection upon those who guided the company's destinies. In one sense, Amoskeag has been too well off. Its status was such as to ward off the day when, under tremendous emergency pressure, the pruning knife is used ruthlessly without regard for tradition or sentiment. Rough as that procedure is, it has proved often to be the only effective method of treatment. Possibly Amoskeag did not get it quickly enough.

Whatever lesson others may learn from the catastrophe, however, all of us who have spent our lives in the industry feel mainly a sense of loss at the realization that an honorable old name may be passing out.

This Month and Next

This Month

Giant Totters

Amoskeag Mfg. Co., largest textile mill in the world and one of the oldest in this country, faces liquidation. Arthur Black, special master under 77-B proceedings, says the best thing to do is to get the agony over with and Judge J. C. Sweeney of Boston agrees, but legal technicalities may pop up. (Page 58.)

At Blue Ridge

Representatives of southern industry—executives, operating men and workers—meet in North Carolina mountains for 17th annual Southern Conference on Human Relations in Industry. Details on pages 56 and 57.

Other Way Around

T. R. Hart, in previous articles, has shown what color effects result from combining various weaves and patterns. Now, on pages 83 to 86, he shows how to select the right pattern and weave to produce any given color effect.

After Twenty Years

Benjamin F. Hayes has gone back to fixing a section of looms he fixed twenty years ago. On page 73 he recounts a few things that have happened to them in the meantime.

A Simple Device

On page 74 Mr. Simond describes one of the newest of his "brain-children"—a device which facilitates the accurate alignment of full-fashioned knitting machines.

Trial and Error

Too bad, but you can't go directly to calculating the best cotton-yarn organization. Professor Merrill says, on page 64, that you have to do a little experimental figuring first.

A Good Rep

Reps and poplins can be made in a variety of ways, some better than others. John Hoye describes them all on page 76.

Coal-Pile Robbers

A periodic check-up of the power plant and mill will reveal excess air, steam leaks, soot, hot bearings, and other conditions which are adding to fuel costs. On page 80 Charles L. Hubbard tells how to detect and stop these unnecessary wastes.

Continuous Dyeing

Efforts to improve on the old batch method of dyeing pile fabrics have led to the development of a continuous method which has been used successfully in processing plushes for the automotive trade. For description of equipment and process see page 72.

"Wire—Don't Write"

But at the same time keep down the cost of your messages. Milton M. Abrams, of Ajax Hosiery Mills, tells how to do this by using a money-saving code for salesmen's telegrams. (Page 79.)

Large Packages

Contrary to the old saying that good things come in small packages, silk and rayon throwsters find larger packages and package-to-package operations permits them to cut costs in half and, at the same time, to improve the quality of their work. For a discussion of this recent development in the throwing industry see page 66.

Dyeing Staple Rayon

Hairiness is one of the chief defects encountered in the dyeing of fabrics made from staple rayon. A dyer who has had wide experience in handling these materials tells how to avoid that difficulty. (Page 69.)

Permanent Finishes

Last month John Gibbons described the viscose process for producing permanent finishes on cotton fabrics. This month he discusses several of the other methods now in commercial use. A "must" article for the finisher who wants to keep up to date on the developments in his industry. (Page 70.)

Just Air

But the determination of relative humidity has its problems. A discussion of the reasons why the readings secured by a stationary hygrometer do not always check with the readings of a sling psychrometer will be found on page 77.

■

Next Month

Rayon 1911-1936: We always get a kick as we approach publication date of our Annual Rayon Year Book Number in September, but this year there's an added thrill, for within that issue we shall celebrate and record 25 years of the production of synthetic fibers in this country. In a special section we shall high-light the dramatic developments which have carried the United States to world leadership in that field. The issue will interpret the contributions made by manufacturers of yarn, machinery, dyes, chemicals, equipment, supplies; it will review the progress in the technique of synthetic yarn manufacture, and in the processing of rayon products in textile mills; it will survey trends in merchandising in this field.

In addition, of course, the September issue will include coverage of all the branches of the industry, with articles on such subjects as Cotton Machinery Organizations, Staple Cotton Fabrics, Suggestions for Loomfixers, Woolen Yarn Defects, Imitating Hand Knitting, Alignment of Full-Fashioned Machines, Sidelights on Cotton Printing, Dyeing of Silk Hosiery, etc., etc.

Do You Know?

How to select the warp and filling color patterns and develop the weave to produce a specific color effect? ***Page 83.***

What type of weave gives the best moire effect when embossed? ***Page 70.***

What is the "standard-draft" method of calculating cotton-yarn organizations? ***Page 64.***

At what process are wools of widely varying characteristics best blended? ***Page 97.***

How does the manner of applying loom pickers affect their strength, warp breakage, weaver's safety, and life of loom? ***Page 73.***

Who has developed a standard method for testing yarn slippage in silks and rayons? ***Page 78.***

What is the advantage of putting a paper around the whip roller when mounting warps for satins? ***Page 68.***

What is the first step which should be taken when resetting the needle bars on full-fashioned machines? ***Page 74.***

What chemicals are being employed to obtain a permanent finish on cotton piece goods? ***Page 70.***

What changes are necessary in winder bobbins which are designed to hold ½-lb. of rayon? ***Page 66.***

Half-Year Rayon Output 6% Up

PRODUCTION of non-acetate rayon yarn in the second quarter of 1936 amounted to 51,400,000 lb. compared with 53,800,000 lb. in the first quarter, according to the *Rayon Organon*. This decline is explained entirely by the serious effects of the March floods on the producing industry's equipment, because the available producing equipment ran at essentially full production in the second quarter. In spite of this adverse influence, production of non-acetate rayon yarn in the first half of 1936 at 105,200,000 lb. was 6% greater than the 99,100,000 lb. production in the same 1935 period. The fact that non-acetate yarn shipments increased by 20% from the 1935 period to the 1936 period means that the normal stock build-up for the fall business has not taken place this year.

Latest News on Japanese Front

NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS filed a petition for protection against low-priced cotton hosiery imports, principally from Japan. Representatives of Federal Tariff Commission have been making preliminary study to determine whether investigation is warranted.

Meanwhile an interesting slant on this situation is developed by the *Rayon Organon* which states that the great bulk of "cotton hosiery" imported from Japan has a boot of rayon plated over cotton, and the usual cotton top, heel and toe. Although the fact that the fiber content of chief value is cotton allows it to enter at the lower rate of duty, the appearance and quality of this Japanese product place it in the most direct retail competition with the inexpensive, all-rayon half-hose as made by American manufacturers.

In the wool division, National Association of Wool Manufacturers points out that total imports of woven fabrics for the first five months of 1936 amounted to 2,944,000 sq. yd. as against 2,128,000 in the same period of 1935, an increase of over 38%. Imports of piece goods from Japan show a continuing increase, the total for the first five months of 1936 amounting to 48,464 lb. as against 31,522 lb. for the entire year 1935. While the total of Japanese imports is not yet large, the association points out, the rate of increase is much greater than the case of wool goods imported from any other country and the figures would seem to justify the association in asking the Tariff Commission to institute studies to determine the relationship of costs in this country and the foreign competing countries.

W. Ray Bell, president of Association of Cotton Textile Merchants of N. Y., stated on Aug. 7 that Japan supplied 71% of the total 63,766,000 sq.yd. of cotton goods brought into the country up to June 30 this year. The total imports were 75% over 1935, same period. Part of the increase was due to importers accumulating stocks ahead of the tariff rise June 20.

1 Killed, 18 Wounded In Alabama Clash

A DEPUTY sheriff was killed and 18 other persons wounded in a gun-battle which broke out late last month near Samoset Cotton Mills, Talladega, Ala. The fighting occurred after a group of deputies went to the mill to quiet a disturbance. John G. Chapman, manager of the mill, issued the following statement:

"Because of refusal of the constituted law officers of the city of Talladega and the county of Talladega and the State of Alabama, including the Governor, to enforce the laws of Alabama, a state of lawlessness, constituting an armed mob with clubs and guns, has taken charge of a section of this city of Talladega for the past several weeks. A condition of this kind could not help but culminate in an outbreak of some kind. I have no details of what happened, except to say that one of the best citizens of our county, John Bryant, a deputy sheriff, is dead and many others wounded."

Cotton Shortage In Longer Staple

A SURVEY of cotton manufacturers and cotton merchants in the South shows that many mills are feeling the pinch of the first cotton shortage in years, particularly those plants processing longer staples. Relief is not expected for the latter group before October, according to Fred Allen, secretary of the Southern Combed Yarn Spinners Association.

The association figures show that around July 20 the mills had used about 725,000 bales of cotton out of 750,000 bales available from the 1935-36 crop. It was estimated that the Delta stock was less than 20,000 bales on Aug. 1. Yarn production for first half of 1936 was 18% greater than the corresponding period in 1935, and 15% greater than the last half of 1935. Production has been gradually increasing for several years. In view of this increasing demand and the fact that less staple is expected from the new crop, spinners in the sale yarn business are going to find it difficult to find sufficient cotton to operate on during the next year. It is understood that a large amount of staple cotton has been contracted for in advance, including nearly all of that produced in the Delta.

Considering the shortage from the general standpoint, the situation is not so serious. In the first place, there are over 2,200,000 bales left of the 12 c. loan cotton, although the producers' pool has now been exhausted. This is not available to manufacturers but would be if the price of $\frac{7}{8}$ in. middling should reach a figure intended to take care of interest, carrying charges, etc., on the loan which has been overdue for some time. Furthermore, release of several thousand bales of this cotton in July tended to relieve matters at that time.

There are differences of opinion as to the actual seriousness of the general situation. As one mill executive put it, "You can always get cotton by paying for it, but we all dislike to pay a premium." Furthermore, it is well known that plenty of organizations months ago bought enough cotton to run them into the new season. Also, when the price gets high enough to warrant such a procedure, mills holding surplus cotton have been known to sell to other mills. On the other hand, some shippers assert that there is a real shortage in the shorter staple lengths as well as in the longer, and that the situation is definitely serious. It is known that several shiploads of cotton are being rushed from the Rio Grande to Charleston, S. C., for immediate consumption by southeastern mills.

Mills which are still able to get cotton if they pay the price, are kicking about the quality of spot deliveries.

As a final commentation, it is interesting to note that in view of the higher prices and short forecast, many mills have bought cotton for the entire year in advance, some of which have depended on hand-to-mouth buying for several years.

City Wants A Mill

DESPITE the veto of Mayor John F. Quinn, on July 10 the Pawtucket (R. I.) City Council passed an ordinance setting up an industrial commission to buy or lease and operate a textile plant for "relief purposes." Supporters pointed out that most of the city's unemployed are textile workers, and that products could be distributed to local and State institutions.

City officials hope to purchase the huge plant formerly owned by Manville-Jenckes Co. for $55,000, set up a municipal textile plant, and lease space to outside concerns. Manville-Jenckes moved out the good machinery and closed the plant in 1931 and later sold it at public auction.

Just Average...

A synthetic concoction by a mediocre contributor

By Jack Card

BANG! Right in the middle of the hot season, when our resistance is low, our old friend and general nuisance, Jack Card, pops up again with "a little piece he'd like us to put in the paper." Somehow or other, we can never say no to this guy—never have been able to from the time back around 1920 when he first waved a manuscript in our face. He's left us alone for two years now; in fact we had just begun to have hopes. But life isn't like that. . . . So, dear readers, we give you Jack Card.—Editor.

DO you recall the "average American" they picked up a few years ago, and gave a free trip to New York, plus many thousand columns of not-too-brilliant publicity? It was one of the milder forms of insanity which have been inflicted upon the dear public.

The man had three children, I think; owned a car and a radio; was the type which would enjoy "The music goes round and round"; was married, of course; went to the movies two and a half times a week; and so on and so forth.

Well, always original, I began to think about the average textile manufacturer. I shall not describe him physically, because many of my friends would think I was getting personal—and there might be complications. But I think it safe to note a few of his thought-processes, since most of us wouldn't recognize our own thought-processes even if we saw them x-rayed and stamped with our initials.

The one flat statement that can be made about this average textile man is that he considers himself a liberal. Now he may be, and he may not: the manufacturers we know range all the way from just plain reds to the most confirmed reactionaries with hermetically-sealed brains. The great bulk of course are neither; they are fairly open-minded, with just enough prejudice to keep them "viewing with alarm" those who speak too frankly.

But, no matter which of these categories they fall in, they are all—without exception—convinced that they are liberal.

That's one peculiarity. Another is that the average textile man is much more apt to say what's on his mind when he's alone than when you find him with a bunch of his fellows. Over and over, I've talked with a man in his office and have been thrilled by his independence of thought, only to be puzzled later on when, in, say, a hotel-room session at a convention, I hear the same man ride with the crowd in complete defiance of what I had regarded, and continue to regard, as his real thinking.

This trait, I figure, is a hangover from childhood. I find it dominating my 16-year old daughter: a fiendish desire to be conventional, or rather a fear of being regarded as anything else but conventional. All of us have it, in varying degrees, I suppose. And it gets in our way.

Some of this may sound critical. Actually, it isn't meant that way. As a matter of fact, we think the average textile manufacturer is one swell guy.

For instance, he's soft-hearted to a fault. We know that sounds strange. Industrialists are usually pictured as hard-boiled so-and-so's; and nicknamed "barons" for short. Well, 'tain't so. We've seen any number of them practically in tears because they have had to cut wages; and we don't recall ever seeing one of them getting any sadistic pleasure out of things like that.

Of course, if you want to pick on a man when he's out after an order, you can't expect to find him doffing his hat and kissing his competitor on both cheeks. He's likely to seem a little rough just then. But actually, he's not that way at all.

And besides that, the average manufacturer we know is a square guy. We'd trust him with everything we have (which isn't a very high compliment, unfortunately). Ever since, we first came on the textile scene, we've heard gossip about this and that man who would take your eye-teeth if you weren't looking. Well, maybe so, but we haven't met them. There probably *are* a few crooks in the game but the percentage is so small that we'd call this a pretty safe field to do business in.

Getting more personal, the average textile man we know is rather cultured. Here, too, he differs from the popular conception of industrialists. He's also very apt to have a hobby. He's an interesting man to talk to. And he's smart—don't kid yourself about that.

Where does all this get you? Simply here: In working with textile manufacturers, it might be well for association executives, government officials, and others to think, not in terms of "the industry," but of the average man—the individual. Such an approach, in employer-employee relations was suggested at the Blue Ridge Conference last month. The idea can be applied more broadly.

Believe me, the successful salesman selling machinery or supplies to textile men doesn't think of "the industry." He sells a lot of individuals. That's what has got to be done if broad plans of industry action and thinking are to get a receptive audience.

* * *

By the way, we neglected to mention that the average textile manufacturer likes to fish but—believe it or not—does *not* chew tobacco.

[Credit, if any, for sketch at left goes to Jack Card who always supplies his stories complete with illustrations and other modern improvements.]

Human Relations

In industry discussed at Blue Ridge conference

HELD in an ideal natural setting at Blue Ridge, N. C., in the heart of the Carolina mountains, the 17th annual session of the Southern Conference on Human Relations in Industry, July 15-17, brought together manufacturers, operating executives, personnel directors and selected workers.

Inevitably, such a discussion today is different from one of five years ago. The dual interest implied by the old standby "employer-employee relations" has been broadened into the triangular employer-employee-government relations. It was natural, therefore, that a part of the program should have been devoted to a consideration of governmental activity in this field—and specifically that of the Social Security Board. In addition, however, there was a wide range of discussion on the part which industry itself must play in the job of developing sound human relationships.

Federal Social Insurance Discussed

SOCIAL insurance, with the cooperation of Federal and State Governments, was the first of the "proposed solutions" of the problem of security of the southern industrial worker considered at the session devoted to that subject. Representing the Social Security Board was W. R. Williamson, actuary, who pinch-hitted for Chairman John G. Winant, detained by illness in his family. Mr. Williamson's approach was far different from that which Gov. Winant takes to this subject, judging by addresses made by the chairman in the past. The latter is concerned mostly with the broad philosophy underlying social insurance, while Mr. Williamson considered it from the insurance standpoint: as risk-sharing, and a cooperative method of providing for special needs.

Admiting frankly that the Federal program is an incomplete one, the speaker pointed out that this is due primarily to the fact that it represents an attempt to introduce budgeting methods where we are not quite ready for them. Insurance people do not like to admit the high cost of this type of protection—old age and unemployment—and haven't done much budgeting in connection with it.

The program is essentially budgeting for the employee, he said. After a few years, the employer does not pay for it, so it should be recognized as an arrangement to help the employee provide for the unpredictable. One of the extremely important parts of the activity of the Social Security Board, he stated, is the research and statistical division which is trying to remedy faults as they are uncovered.

West Speaks for Industry

The Federal law requires subscription on the part of industry and on the part of the individual industrial worker, regardless of his ability to pay, stated Robert R. West, president of Riverside & Dan River Cotton Mills, Danville, Va., in leading the discussion following Mr. Williamson's talk. "The tax load upon industry is not contingent upon the possibility of the industry having the surplus from which to pay the assessment," he continued; "the mere fact of having a payroll is the basis of the tax."

Even more challenging was his statement that the passage of the Social Security Act makes "the most drastic departure from what we have considered normal relationships between citizens and government that has been experienced in the history of this country." "It marks a long step toward the people of the United States becoming subjects of a great power as distinguished from citizens of a great state," he added.

Furthermore, Mr. West claimed, the provisions of this legislation do not achieve social security but merely provide an avenue of approach to it. "The terms of the act presuppose that there will be sufficient means available from the industrial income, both corporate and individual, to finance the proposed benefits, he continued,

"It can be seen, therefore, that the hope of successful operation of even such a program as this resides in the continuity of substantial industrial activity. The Social Security Act by no means shifts the responsibility of security from industry to government; it merely sequesters funds obtained from industry and industrial workers and provides the specifications for disbursing such funds, so when all is said and done, the primary reliance of the security of industrial workers still lies upon the industry itself, regardless of the means employed to finance that security."

Luther H. Hodges, production manager for Marshall Field & Co., presided at the session at which the Social Security Act was considered. Active discussion followed the principal talks.

What Industry Is Doing and Can Do

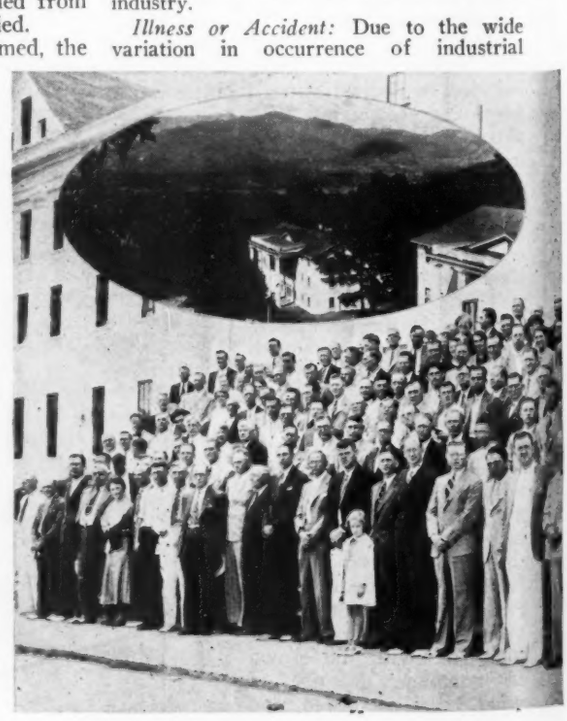
THIS part which industry is playing and must play still further in providing security for the southern worker formed the subject of a session at which the speakers included Dr. Claudius T. Murchison, president of the Cotton-Textile Institute; Donald Comer, president of the Avondale Mills, Birmingham, Ala.; C. D. Barr, vice-president of American Cast Iron Pipe Co., also of Birmingham; and Harry W. Culbreth, of the Credit Union Administration, Washington, D. C.

Murchison on Security Problem

However wide in theory and intention may be the scope of legislative provisions in the interests of emergency relief, stated Dr. Murchison, in actual practice it will be impossible for the government to pre-empt the field. "If American social standards are to remain on traditional levels or advance to new heights in accordance with the hopes of all of us, it will require not a diminishing but an increasing responsibility on the part of American business," he continued. To demonstrate the truth of this statement he examined the nature of the various causes which contribute to total of unemployment:

Old Age: His conclusion here was that the problem of social insurance, insofar as it applies to the aged, is one of primary concern to the state rather than to private industry.

Illness or Accident: Due to the wide variation in occurrence of industrial



disease and accident from one occupation to another and from one enterprise to another, and the necessity for particular action to meet these particular conditions, it is apparent that social responsibility cannot entirely displace individual responsibility.

Business Insolvencies: Here, as in old age, the major responsibility for the continuation of employee incomes pending re-employment must reside with the state, whether it be a matter of Federal or local administration.

Technological Change: It is a gloomy and sad outlook. Dr. Murchison stated, that each coming year will probably contribute its quota to what may be termed the technologically unemployed. He advocated the use of dismissal compensation as a supplement to whatever insurance plans of a more general character may be brought into effect.

Seasonal Inactivity: The employer may help employees to meet seasonal changes by such methods as providing facilities for learning alternative occupations; utilizing the personnel director as an agent for making new employment contacts for the workers during period of lay-off; and encouraging workers to carry on part-time agricultural activities.

Labor Turnover: A large part of so-called labor turnover is due to physical and temperamental qualities which are not adapted to the particular job to which he is assigned. Modern personnel administration can reduce this turnover by making use of scientific studies of job analysis which have been going on in recent years.

Cyclical Unemployment: After careful consideration of this most important type of unemployment, Dr. Murchison concluded that "in all likelihood we have not yet perfected through state agencies a social insurance program to the point where individual employers may feel free to slough off their responsibility with a good conscience." Therefore, in addition to the lines of approach he had previously indicated, he suggested other activities which employers might undertake such as group insurance, group annuities, mutual benefit associations, credit unions, home owning, etc.

"It is always to be presumed, of course, that the relationship of employer and employee, in their common objective of social security, is on a voluntary basis," he concluded. "So long as the employee is on the payroll and occupying his normal position in the community, there should be no charity. Charity does not go in harness with individualism and self-respect. . . . The perfect mutuality which is necessary to industrial efficiency as well as to social security has, as its firmest base, the common recognition of individual independence."

NOT EVEN LIGHT PINK

SOMEHOW or other, the Southern Conference on Human Relations in Industry, held each year at Blue Ridge, N. C., got a black eye in certain quarters a few years ago. It was considered, by some, as sort of socialistic in character—pinkish, if not downright red. In fact, it was even rated as a "menace."

We have heard that a speech made there on one occasion formed at least part of the basis for this holy horror of it. We don't know about that; we haven't looked it up, nor do we plan to—we haven't the time. All that we do know is that anyone who could find anything in this year's sessions to shudder at has a better nose for a "menace" than we have. We came away convinced that the world was still safe—and possibly, because of the conference, even a little safer—for democracy (with a small "d" of course) and all the other established institutions.

In fact, this is what we would call one of the most constructive types of conference imaginable. Years go by with so much discussion of the tangibles of industry, and with so much neglect of the intangibles, that the devotion of a few days to the latter is most welcome.—*Editor.*

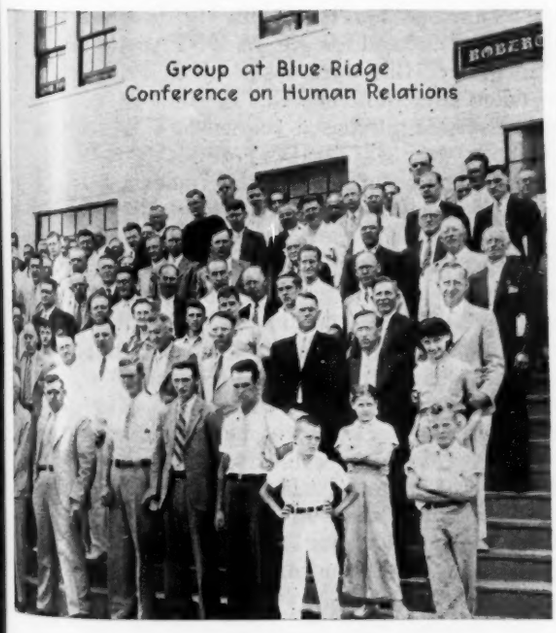
Comer Advocates Home Ownership

The greatest thing that industry today can do anywhere, or that any man can do, is to concern itself or himself with the business of helping employees to own their own homes, stated Mr. Comer in one of the very human and enjoyable talks for which he is noted. In the last year, he said, his company has helped 100 families to move out into the country and to buy homes with five acres or more of ground—and no family has missed on a payment yet.

Mr. Barr made the interesting experiment of taking a toll of those present to get a sample idea of what southern industry is itself doing for the security of its workers. He got the following results:

Plant Paper	18
Company Gardens	11
Benefit Associations	10
Dismissal Wage	1
Group Insurance	35
Medical Service	23
Pension Program	7
Savings Plan	19
Vocational Training Program	17
Religious Program	15
Christmas Bonus	10
Vacation with Pay	4
Home Building Program	6
Cooperative Stores	6

Dr. B. E. Geer, former president of Judson Mills and now president of Furman University, presided at the session at which this phase of the subject was discussed.



Group at Blue Ridge Conference on Human Relations

Sound Industrial Relationships

THE problem of establishing satisfactory industrial relations was analyzed by C. S. Ching, director, industrial and public relations for the U. S. Rubber Products Co., at a session presided over by T. M. Forbes, secretary of the Cotton Manufacturers Association of Georgia. Mr. Ching's remarks were noteworthy for their frankness and realism. During the discussion period which followed—incidentally off the record—he answered the most searching questions about his attitude and that of his company.

In his preliminary remarks, he stated that since industry operates on the profit-and-loss system, management is merely trustee for the stockholders' property and for the reputation of their investment in the community. Management's opportunities for proper contact with the community and the employees have been neglected. One difficulty in handling industrial relations is that there is a tendency to think about employees en masse whereas the only way of getting at the matter is on the basis of the individual.

Illustrating certain fundamentals in employer-employee relations, Mr. Ching stated that a few years ago his company decided it would never hire another man or woman; it would select certain people for membership in the organization. The process is exactly the same as before, he added, but the attitude is different.

The employee has just as much right to demand references of an employer as the latter has of the former, he continued, but it is never done. The employee should know what sort of company he is getting connected with. That is his right.

His company starts its employee relationships with its own products—getting the employees to know that the company is trying to make a good product offering good value. The company itself must have character and integrity; if it hasn't, it can't build up satisfactory industrial relations.

After the employee is on the job, he continued, the thing to do is to handle him properly. An important point emphasized by the speaker was the necessity for telling employees when the management is planning to make changes in production, etc.; in this way rumors and their harmful effect on the organization can be prevented.

Amoskeag's Last Mile?

World's largest mill glimpses the grim reaper

REGARDLESS of whether stockholders, civic or State authorities work out some plan to salvage and operate some part of the plant of the Amoskeag Mfg. Co., Manchester, N. H., it seems clear that the court order for liquidation issued by Federal Judge George A. Sweeney of Boston on July 15 means the end of Amoskeag as such. In giving his opinion, Judge Sweeney followed the recommendations of Special Master Arthur Black, who held hearings under Section 77b of the Bankruptcy Act and who reported on July 9:

"In my judgment, reorganization is impossible. That being so, I believe it is kindest to all concerned to say so at once. I therefore recommend that liquidation be started forthwith and that all salaries now being paid, or expenses incurred, on the chance of reopening, be stopped at once."

Samuel T. Freeman Co., Boston, auctioneer, has been appointed to conduct the sale of real estate and equipment, expected to be held around Oct. 15.

As in all cases where large sums are involved (Amoskeag's assets were listed at $24,628,737 on Dec. 24, 1935) there are a number of factions with varying points of view and possibilities of legal complications. One point that has not been decided as yet is whether an appeal questioning the jurisdiction of the Boston court will be successful.

The immediate situation traces back to June, 1935, when drastic curtailment was started. By the end of September, the plant was completely closed. Amoskeag, which employed upwards of 15,000 at one time, is the backbone of Manchester, and Manchester is the largest city in the State of New Hampshire. Consequently, Governor H. Styles Bridges appointed a special committee of civic and municipal leaders to investigate the possibilities of reopening the plant. The committee issued a frank and constructive report in November, holding among other things that there was need of greater cooperation among management, workers, townsfolk, and city government; that modernization was necessary; and that the need for paying 6% interest on $11,379,000 of bonds was a drain. Events since that time are as follows:

Dec. 24: Petition for reorganization under Section 77b of the Bankruptcy Act filed in District Court of the U.S., Boston. Security holders act to form committees.

Jan. 20: Petition granted by Federal Judge George A. Sweeney

March 8: Workers vote (3,669 to 3,133) to accept downward revision of wages in the cotton division if plant reopens.

March 9: Plan for reorganization filed by which holders of the 365,977 shares of common would keep their shares, and bondholders would have choice of receiving new stock or part cash and part stock for their bonds.

March 20-21: Flood causes damage to plant later put at $2,500,000.

April 15: Stockholders approve reorganization plan. Bondholders representing $5,650,000 favor plan giving part payment in cash, and $350,000 object to plan.

April 27: Questions referred to Special Master Arthur Black. (Hearings started June 10.)

June 9: City of Manchester drops valuation on plant from $13,000,000 to $6,750,000 and tax bill is reduced from $416,000 to $276,750.

June 10: Plan for reorganization withdrawn, company officials stating that the flood damage and the desire on the part of a large number of bondholders to get cash, places the company in the position where it cannot secure sufficient working capital.

June 15: Council for Mrs. Elizabeth Leland, bondholder, asks that the 20% of bondholders who bought in the open market be given special consideration as against those who secured them in the capital reorganization of 1927.

July 9: Special Master Arthur Black turns in his report.

July 15: Judge George A. Sweeney hands down his decision.

July 29: Special Master Black decides that those who purchased bonds on open market are entitled to no special consideration, but bonds held by the Amoskeag Co. (holding company) be subordinated.

Aug. 3: Samuel T. Freeman Co. appointed to conduct auction sale of property in units to attract small operators if no buyer appears for the property as a whole. J. O. Tremblay, A. M. Sheldon and T. S. Prendergast have been named as appraisers in liquidation.

There the case rests at present.

Amoskeag is venerable (1804) as well as large (latest report, 654,342 cotton spindles, 66,334 worsted spindles, 24,000 cotton looms, 5,600 worsted looms). Treasurer Frederick C. Dumaine has been with the company 50 years and has been its head for 30. In 1906 Amory Mfg. Co. and Manchester Mills were absorbed, in 1922 Stark Mills were taken over, and in 1925 Parkhill Mfg. Co., Fitchburg, Mass., was purchased (closed in 1928). The highest dividends were 35% (1904) and 25% (1900).

In 1911 the company started operating under a deed of trust and in 1925 certain quick assets were segregated in Amoskeag Co., a holding company, while the physical plant, receivables and current bills, and $6,000,000 in cash were turned over to Amoskeag Mfg. Co., the operating company. In 1927 Treasurer Dumaine stated that outside interests were trying to get control and liquidate, but he and associates defeated the move. The capital structure was then reorganized. The Amoskeag Mfg. Co. retired its preferred issue (mostly held by Amoskeag Co.) by paying $8,135,076 in cash, $14,655,000 in bonds, and 13,191 shares of common. The Amoskeag Co. then gave each holder of one share of its common stock the opportunity of exchanging it for $52 in cash, $40 in 6% Amoskeag Mfg. Co. bonds, and one share of Amoskeag Mfg. Co. common.

Southern Hosiery Meeting

200 attend association's convention in Chattanooga

NUMEROUS problems of immediate importance to Southern industry generally and the hosiery branch in particular were discussed at the annual meeting of the Southern Hosiery Manufacturers' Association, held July 10-11 at Chattanooga, Tenn. That the southern hosiery industry is alert to current issues, and especially to the problems presented by low-priced imports, and recently enacted legislation, was manifest both in the attendance, which totalled some 200 manufacturers representing both full-fashioned and seamless divisions, and in interest shown at the convention.

The convention was marked by four highlights: (1) adoption of a resolution authorizing appointment of a committee to petition Congress for immediate repeal of the "inequitable" provisions of the Revenue Act; (2) an address by Donald Comer, president of the American Cotton Goods Manufacturers Association, in which he vigorously criticized the Government's attitude on imports, asserting that the present policy of admitting cheap Asiatic-made goods under treaty is working serious harm to home industry; (3) a plea by Paolino Gerli, of E. Gerli & Co., president of the International Silk Guild, for more conservatism and less speculation in buying raw silk; and (4) the election of H. T. Bryan, of Chattanooga, Tenn., as president of the Association, succeeding R. O. Huffman of Morgan, N. C.

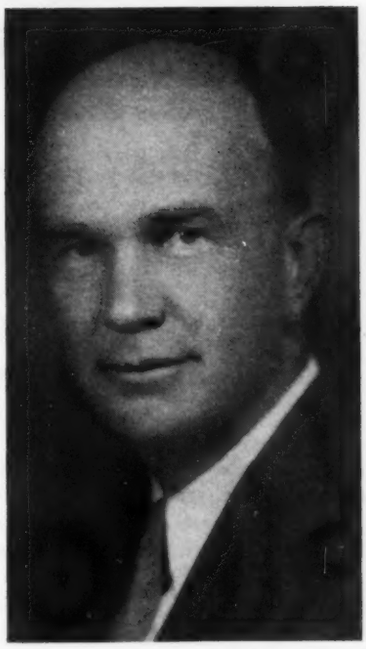
Mr. Bryan has taken active part in Southern hosiery industry matters for some time, as a leader in the affairs of the Southern Hosiery Association. He is president of the Bryan Hosiery Mills, Inc., of Chattanooga, Tenn., manufacturers of full-fashioned hosiery.

Mr. Comer spoke strongly against the present-day trend toward reciprocal trade agreements and especially scored secret trade treaties. He remarked caustically that the industry would like to be advised by Secretary of State Hull as to how much goods from Japan, India and other countries, the textile industry is going to have to absorb.

In discussing employer-employe relations, he emphasized the need for a keener interest by manufacturers in employe welfare, stating that closer cooperation in this direction would help toward solving the social problems of the new age the country is now entering.

Mr. Gerli's talk was frank and sometimes critical. He deplored the prevailing ignorance regarding the raw silk market and the background of the silk growing industry, adding that "he didn't know whether to blame the raw silk people or yourselves" for that condition. He urged hosiery manufacturers to give more study to the functions of the Silk Exchange, pointing out that it can be made to serve the manufacturer as a protective agent.

The speaker said one of the chief needs, as regards silk inspection, is uniformity, on which "there never will be agreement until we abandon pet theories of individual knowledge or prerogative." Failure to establish quality determination on a basis of meeting the specific needs of the customer divisions, he said, was causing "a million dollar waste of our American raw silk buying industry." Mr. Gerli commended the work being done by the National Association of Hosiery Manufacturers in cooperation with the Raw Silk Importers in this direction, adding that "perhaps within a year we will get somewhere."



H. T. Bryan, the newly-elected president of Southern Hosiery Manufacturers Association

A point in his address which excited interest was his suggestion that manufacturers of branded hosiery are missing one of their best selling arguments in failing to stress the fiber content of their product.

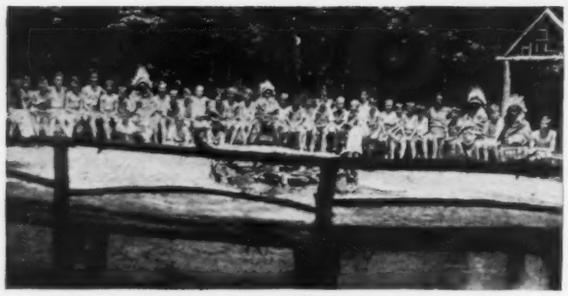
"The branded houses," he said "are so intent on selling their name that they forget the value of the word 'silk'."

Concluding, he expressed apprehension that "the thoughtless speculative movement at this moment will come a cropper just at the time when your own market gets under way for its fall and holiday business.

"I would rather pay more in August and September knowing I am on sound ground with a clear road ahead, with many question marks obliterated by that time, than risk to put up the market on myself, participate in a fine orgy of excitement and then wake up with the same headache of last spring."

The annual report by Taylor R. Durham, executive secretary, was devoted mainly to legislative issues. He scored the undistributed profits tax as "unsound," emphasizing that it penalized corporations which did not pay earnings in dividends. Mr. Durham stated that manufacturers generally recognize the necessity for added federal revenue and that there might be less objection to a tax increase which was based on ability to pay.

Another speaker was A. W. Taber, tax consultant of the City of Chattanooga, who analyzed the provisions of the new Revenue Bill. Officers elected to serve with Mr. Bryan are: P. W. Eshelman, vice-president and chairman of the seamless division, North Wilkesboro, N. C.; A. Straus, vice-president and chairman, full-fashioned division, Columbus, Ga.; Fritz Seifart, treasurer, Charlotte, N. C. Mr. Durham was reelected executive secretary. Social features of the convention were golf tournaments, a bridge party and a dinner-dance.



Group in Indian Council Ring

Cone's Camp

An outstanding example of employee benefits

AN outstanding example of constructive employee benefits is to be found in Camp Herman, near Greensboro, N. C., sponsored by the Cone textile interests of that city. Last year 425 persons, nearly 300 of whom were boys from 8 to 15 years, took advantage of the recreation offered by the camp. The remaining 125 included young girls who are offered the camp at certain times, and older persons attending special week-end periods arranged for those who work in the mills. The enterprise is typical of similar services undertaken by other Southern mills. Camp Herman entered its thirteenth season in June, It had its beginning when Herman Cone, treasurer of Proximity Mfg. Co., decided to send 25 boys and leaders on a camping trip. Attendance and interest continued to exceed expectations until it was decided to build a permanent camp.

The present properties cover 125 acres and are only a few miles from Greensboro. The camp site itself is located on the shore of a 15-acre lake. Physical equipment consists of eight sleeping cabins, a 30x100 ft. dining lodge with camp headquarters in one end, infirmary, library, head counselor's cabin, chapel, outdoor council ring, a 30x60 ft. program building with stage, a bath house, a director's cottage, a combination chicken house and workshop. The dining room will seat 120 persons. The lake is equipped for water sports and boating. In addition to diving boards and piers, there are eleven unsinkable steel boats, two motor boats with outboard motors, one scow and two Indian canoes. There is an athletic field for baseball, field meets, etc. The rolling woodlands covering the camp properties are honeycombed with pleasant hiking trails.

Camp Herman is operated by a camp director, and under the supervision of the Cone Memorial Y.M.C.A. In addition, there is a camp committee consisting of several superintendents and executives of the various mills in the group. H. M. Angel is camp director, and Albert S. Arnold heads the Y.M.C.A.

Each boy pays $3 per week and the company pays $3, all of which goes to pay for food. Other expenses are included in the company budget. Even those who cannot raise $3 often are enabled to attend as a result of contributions from a "friend of the boys."

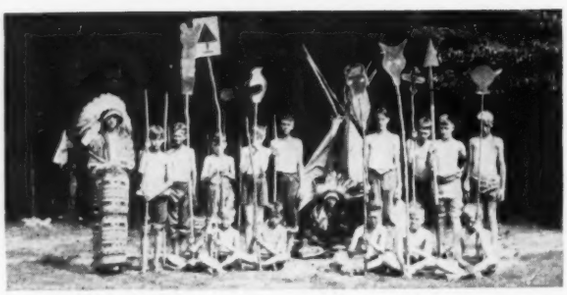
Activities include those games and crafts on the program of most young persons' camps; i.e., hiking, swimming, boating, archery, woodcraft, handicraft, photography, etc. Character building is stressed, and emphasis is laid on developing all-round good citizens, spiritually, mentally and physically.

Across the lake from the camp is a recreational park maintained for the general use of all employees of the Cone mills, named Louise Park, after Mrs. Herman Cone.

Boating scene on camp lake

Ponies used in camp pageant

The camp's sharpshooters



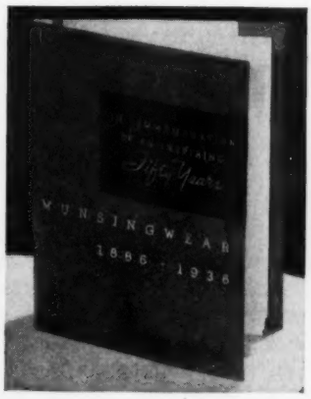
Learning Indian Lore

Boys at archery practice

Golden Jubilee Year

for two important knitwear companies

MUNSINGWEAR CORP. 1886-1936



"STEADFAST adherence to a simple ideal" —that is the secret, say officials of the Munsingwear Corp., for the growth of this underwear manufacturing company, through half a century of successful expansion. The Munsingwear Corp. this year is celebrating its golden jubilee, and the occasion is being marked by various promotional activities. In 1886, President Cleveland was nearing the end of his first term, when young George D. Munsing founded in Minneapolis under modest auspices, the business which is now a $4,000,000 enterprise, and holds a distinguished position in the knitted underwear field. The firm was originally known as the Northwestern Knitting Co., but soon changed to the name which it has made famous among branded textiles.

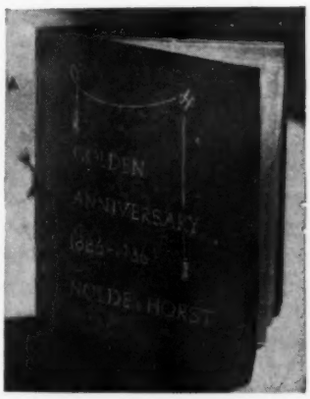
Observance of Munsingwear's fiftieth birthday began last December with a golden anniversary sales convention, and is being continued through the current year; various merchandising tie-ups, incident to the occasion, are being considered for the coming fall. One feature of the jubilee was the publication of a Golden Jubilee booklet, entitled "Munsingwear 1886-1936," which is being distributed extensively through the trade to all firms and individuals having contact with the company. This volume is illustrated with historic sketches.

The booklet describes conditions in the United States in 1886 when Mr. Munsing, with Frank H. Page founded the company. Through the years following, the jubilee booklet states, the aim of Munsingwear has been "to produce the best merchandise that could be manufactured, and to market that merchandise by fair methods and at prices both trade and public deem reasonable."

Munsingwear has been especially favored in that the chief figures in its development have been thoroughly practical men. For instance, George E. Rutledge, who has been president since 1932, "can take off his coat and build a knitting machine, and then go out and sell the firm's goods."

Mr. Rutledge's election followed the death of F. M. Stowell, likewise a practical man, who had been president for nearly twenty years. Serving with Mr. Rutledge in the present administration are: Franklin Chatfield, vice-president in charge of production; and C. L. Pillsbury, executive vice-president and treasurer.

NOLDE & HORST 1886-1936



SCENE: A little house in a modest community near Reading, Pa. Time: Late any evening in the year 1886. A young man who had toiled all day in the woolen mills of Stony Creek, nearby, was burning midnight oil, in an effort to develop a hand-operated "seamless" hosiery knitting machine.

The young man was Jacob Nolde. Today, fifty years after, the successful outcome of his dream is being celebrated by the Nolde & Horst Co., one of the important quality hosiery companies of the country.

The story of the early growth of Nolde & Horst Co. is in large part the story of the development of modern hosiery manufacturing equipment; however, it is equally the story of a determined man's effort to manufacture men's hosiery in quantity without sacrifice of quality. Jacob Nolde opened his first mill, a small establishment, at 143 Cedar St., Reading, in 1886, which he operated under his own name until, in 1890, he entered into partnership with George D. Horst. The two had much in common: Both were young emigrants from Germany; and both had confidence, energy and vision.

Two years later, the firm moved to a three-story building on Moss Street, Reading. That was the first structure on the site of company's present mill. Successfully meeting the difficulties of the 1893 depression, the youthful partners began the manufacture of full-fashioned hosiery, which was then in process of development in Europe. In 1899 the plant was destroyed by fire. The partners refused to be discouraged, and an entirely new mill was built, producing better hosiery than before; in 1910, Nolde & Horst entered the women's silk full-fashioned field.

George D. Horst, last survivor of the trio of founders, died in 1934. A Golden Jubilee volume, issued by the firm to mark its anniversary, pays tribute to the founders. However, it also emphasizes that "the ideals of the men who built the company are perpetuated by the present management." Present officers of Nolde & Horst Co. are: John H. Vogt, president, who succeeded Geo. D. Horst in that post; William H. Gosch, vice-president, who is president of the National Association of Hosiery Manufacturers; Hans W. Nolde, secretary and treasurer; and C. M. Guthrie, assistant secretary and assistant treasurer.

Domestic Rabbit Wool

By William H. Butler
Boston, Mass.

Too fine for most commercial needs—
Likely to remain a high-priced specialty

EXPERIENCE with angora rabbit wool during the last year or two tends to indicate its possibilities in the textile field rather definitely. This wool as produced in the United States seems too fine to permit volume consumption and there is lacking a technique of handling this expensive material without incurring loss.

The type of angora now being grown in the United States will continue to find restricted use in home knitting circles, county associations, granges, etc. Breeders will have to devote their attention to production of a coarser type before any very satisfactory response comes from the textile industry proper. No information is available regarding the number of animals in the United States or whether they are increasing or decreasing. From all appearances angora will remain a specialty industry of small, high-priced output on account of the unremitting labor entailed in caring for these beautiful little animals.

Angora is not a true wool, lacking an inner channel and, what is of more detriment in manufacture, showing an entire absence of the minute serrations that cover the surface of a wool fiber. Angora is in fact an exceedingly fine hair. It is difficult to handle and cannot be utilized successfully in spinning mills except in conjunction with a preponderance of wool or silk, or both these fibers. In fineness it is exceeded only by Vicuna.

Imports of angora from France, at very high prices, have tended to mislead domestic growers who apparently have not been aware of the fact that the French angora is of "lower grade"—to use a wool-trade expression, less difficult to handle and more in a line with mills' knitting yarn requirements. Most of the animals on the Pacific coast and at scattered points, including New England, are of the English fine breed. Imports of English angora all along have been comparatively small. This indicates the task before domestic rabbit growers if their objective of creating a valuable adjunct to the farm industry is to be successful. The breed may be converted by the selective process of mating only the coarser haired animals, and in time the delusion that the finer the angora wool, the better the demand and the higher the price, will have disappeared as the wool produced tends in the direction of meeting manufacturing requirements.

In developing an output of a grade of angora that will meet more satisfactory use in production of knitting yarns, rabbit breeders might learn something from sheep growers. The various types of apparel wool in the world today are basically the result of crossing the fine merino sheep with the long, coarse wooled Lincoln.

Some progress has been made in recent months in removing the domestic angora wool industry from its semi-chaotic condition and in establishing of a system of grading to meet the requirements of the woolen and worsted industries. In the matter of production and methods for accumulating the relatively small quantities produced over a wide area, less favorable results have been achieved.

However, if one may judge from the decline in imports of the foreign wool during the last year or two, it seems likely that domestic output is making gains in meeting current domestic consumption.

Seasonal demand for angora runs from the middle of June until the end of November. Available supplies of fine angora are comparatively large, while stocks of staple suitable for woolen mills and of coarser wools for knitting are comparatively small. Demand from the woolen division has in the main been steadier and more promising than the call from worsted mills.

In general, the fine quality angora is used in the construction of underwear and the coarser wool for outerwear. Little yarn is produced exclusively from angora except in home circles; mill production is always associated with varying percentages from 25 to 50% of angora and the balance a carrying material such as silk or wool. Some manufacturers of staple rayon are interested in creating a synthetic angora fiber.

Most of the angora merchandised in the East is from the northwestern States. The New England output is small and finds its use in household spinning and knitting mostly to special order.

The grading of angora into recognizable and established qualities is due in good part to the work of Lawrence J. Johnson, one of the younger men of the Boston wool district. Grades and approximate prices at this time follow: French type, $5.50; fine worsted suitable for combing, $4.50; fine woolen grade, $3.00; coarse woolen grade, $3.85; clean mats, $1.50; stained, soiled and defective, 85c.

Imports of angora are now at a low ebb. Boston apparently is the only port where angora has a specific classification; elsewhere angora is included with cashmere. Boston imports as reported for last year included from England, 2,895 lb. at $3.31 per lb.; from France, 5,366 lb. at $5.35 per lb.

Imports of yarns made from angora have all along been larger in volume than arrivals of the unmanufactured material. The low prices of the yarns relative to the raw material indicate the large percentage of wool or other fiber in their composition. Imports for the last three years:

1933.....23,937 lb. at $5.30 per lb. (N. Y. alone)
1934.....18,366 lb. at 6.29 per lb. (N. Y. alone)
1935.....23,693 lb. at 6.09 per lb. (N. Y. and Boston, Phila.)

3. Distinctive dressmaker effects feature this knitted suit made from fancy wool nub yarns. Grobleue.

4. Trend toward woven effects in knitted outerwear is illustrated in this flatknit herringbone wool suit. Geist & Geist.

5. Accordion pleating of knitted fabric is a fall novelty introduced by S. Augstein & Co., in this jacquard zephyr wool three-piece outfit.

1. Zephyr wool and angora combined in front-button blouse of two-piece jacquard knit suit. Edelweiss flowers are knitted into fabric. S. Augstein.

6. Green matelasse knit wool jacket tops a closeknit flared skirt; two narrow stripes of green accent the slim line of the skirt. Geist & Geist.

2. Unusual sheerness and mould lend interest to this knitted ensemble of Bemberg yarn, by Goldworm. Hat G. Howard Hodge; gloves Wear Right.

New Knitwear Fashions

NOTABLE progress made of late in varying the style of outerwear garments that can be made on knit-machines, was effectively demonstrated at a Knitted Fashion show, held July 7, at the Hotel Astor, New York. The event was staged by a committee representing fifteen knitwear manufacturers. Over 100 models selected from the lines of these firms by a style jury of leading fashionists, were shown, and the display included all the principal apparel divisions of knitted outerwear.

The show served to focus attention on a national campaign for promotion of knitted outerwear, which drive has just been inaugurated by the Knitwear Institute.

The knitwear fashion show was easily one of the most notable events of the kind held by this textile branch. Among its many points of significance, five were outstanding: (1) the simulation of woven wool effects both in fabric design and in garment styling; (2) the decided tendency toward high fashion dressmaker modes; (3) interesting fur-like surfaces; (4) increasing acceptance of knitwear in formal apparel as evidenced in a distinctive knitted wedding gown; and (5) wider variety of mottled effects achieved by use of specialty yarns.

Trial and error necessary to some extent in calculating

COTTON ORGANIZATIONS

By Gilbert R. Merrill
Lowell Textile Institute

◆ *In this, his fourth, article on calculating cotton-yarn organizations, Professor Merrill describes the experimental figuring which is usually necessary to secure the results wanted; and he also explains the "standard-draft" method, which is founded on a proportioning of the required drafts with certain basic drafts. In addition, he offers an actual organization as an example; and next month he will present several more, including a 48s produced with long draft in spinning and another 48s produced with long draft in both roving and spinning, thereby affording an interesting comparison.*

IN each of the various organizations given as illustrations in the previous article and in this one, the development proceeds with two ideas in mind: first, that the draft for each operation should be within the usually prescribed limits of each operation and, second, that the size of the product should be reasonable for the machine making it. Often, the first trial for an organization is a very approximate affair and serves merely to give an idea of the drafts and sizes likely. From this as a basis, a more accurate layout is developed, in which sizes of product are taken as fixed and the drafts necessary to produce these sizes are calculated.

For example, a very likely first approach for the 22s sheeting yarn in the last article might be as follows: Assume a spinning draft of 10 and roving drafts of 6, 5, and 4, respectively. $22 \div 10 = 2.20$. Doubling this gives 4.40-hank fine roving. Using a draft of 6 on the fine frame gives $4.40 \div 6 = .73$-hank, which, doubled, gives 1.46-hank intermediate roving. Using a draft of 5 on the intermediate, gives $1.46 \div 5 = .29$, which, doubled, gives .58-hank slubber roving. A slubber draft of 4 gives $.58 \div 4 = .145$, or 57.5-grain sliver.

It is necessary to determine arbitrarily what sliver should be used. As 50 to 60 grains represents the common range, and as 60 gives higher production without appreciable reduction of quality, this would be a likely size to make on the drawing frame.

In the trial method spinning contraction was neglected, which means that the spinning draft would have to be enough greater to take care of it, if using 4.40-hank. Consequently, use a second trial, shifting to 4.50-hank. Using 5% spinning contraction gives 23.16s, which, divided by 2.25 (4.50-hank doubled), shows that a draft of 10.29 would be necessary on the spinning frame. As 60-grain sliver is heavier than our trial weight, it would seem best not to raise the 1.46-hank intermediate size but rather to coarsen it, so this trial is with 1.40-hank. Then, $4.50 \div .70 = 6.43$ fine draft.

Then, to bring the slubber more in line with the heavier drawing sliver, change the .58 to .50-hank. This gives an intermediate draft of $1.40 \div .50 = 5.60$. The slubber draft will be $.50 \div .139 = 3.59$.

It might seem that to give a more perfectly balanced set of drafts the intermediate roving should be 1.50-hank; and the slubber hank, .57. The drafts would then be $4.50 \div .75 = 6.00$ fine, $1.50 \div .285 = 5.27$ intermediate, and $.57 \div .139 = 4.1$ slubber.

The following table shows the sizes from these trials with the sizes actually used in two mills to produce yarns about this size.

Trial			Sheeting	Tire
1st	2nd	3rd	22s	22.5s
22.0	23.16	23.16	23.16	23.93
4.40	4.50	4.50	4.50	4.50
1.46	1.40	1.50	1.40	1.50
.58	.50	.57	.50	.55
57.5	60	60	60	65

These trials show how any organization may be approached and worked out. At the same time the table indicates that two mills making similar counts may vary some from a theoretically perfect organization and yet not be radically different after all. Local mill conditions often limit the use of the theoretical organization, but rarely does a mill get very far away from it.

23s Combed Tire Yarn

Since the earlier days of automobile-tire production, 23s yarn has been a standard tire yarn. Usually it is made into a cord 23/5/2. Much of this is woven with about two picks per inch as a means of holding the cords in place until the rubber coating will do so. In some instances, the warp is run through a machine which applies a rubber solution and so holds the cords together as a fabric without weaving.

Strength and elasticity are very important characteristics with a yarn of this sort. Much experimenting has been done to determine the best twists for spinning and twisting to produce the most desirable cords. About 19 twists per inch in the single yarn are considered necessary. This means a twist multiplier of about 4.00 and a spinning contraction of about 6%.

With the usual combination of twists used in the two twisting operations, it has been found that there is a slight elongation of the single yarns and the resulting strand is not exactly correct if 23s is spun. In one mill, 22.5s was the exact count at the spinning frame to give a correct size for 23/5/3. Nevertheless, the yarn was called 23s.

The common arrangement is to use three roving operations, double roving at the spinning frame, and two drawing operations.

This organization introduces combing, which involves the sliver and ribbon lappers.

It should be quite clear that this same organization may be used for 23s carded yarn by simply omitting the lapping and combing operations. Note how closely this organization parallels the sheeting organization,

Double roving in spinning.
Spinning contraction 6%.

Three roving operations.
Actual count 22.5.

Spinning contraction 6%	.94)	22.5
Spinning draft	10.64)	23.93
		2.25
Spinning doublings		x 2
Fine draft	6.00)	4.50-hank fine roving.
		.75
Fine doublings		x 2
Intermediate draft	5.50)	1.50-hank intermediate roving.
		.273
Intermediate doublings		x 2
Slubber draft	4.25)	.545-hank slubber roving.
		.128-hank or 65-grain second-drawing sliver.
Second-drawing draft		5.54
Second-drawing doublings	6)	360
		60-grain first-drawing sliver.
First-drawing draft		5.50
First-drawing doublings	6)	330
		55-grain comb sliver.
Comb draft		60
Comb noil 13%	.87)	3300
Heads on comb	8)	3792
		474-grain ribbon lap.
Ribbon-lapper draft		4
Heads on ribbon lapper	4)	1896
		474-grain sliver lap.
Sliver-lapper draft		2.33
Sliver-lapper doublings	20)	1100
		55-grain card sliver.
Card draft		94.5
Card waste 5%	.95)	5200
	437.5)	5475
		12.5-oz. picker lap.

Vertical openers in tandem
Bale breaker

Standard-Draft Method

One method of determining a reasonable series of drafts to use in making a yarn is based on a type of proportion between a series of "standard drafts" and the required drafts for the yarn in question. This involves, first, establishing a "standard draft" for each operation. This draft is usually taken as an average draft for the operation. In this case such drafts might be as follows:

Slubber	4	Spinning:
Intermediate	5	Single roving 7 to 9
Fine	6	Double roving 9 to 11.
Jack	7	

While some choose to carry this method back through drawing and carding, the organization in drawing and carding does not seem so directly connected with the changes in counts as to require including these operations. After all, the bulk of carding and drawing comes in the range of sizes between 50 and 60 grains and does not necessarily vary with the counts.

In using this system, it is necessary to conclude how many roving operations will be used and whether the yarn will be spun from single or double roving before starting the solution for the necessary drafts. It is also necessary to know the grain sliver back of the slubber and the counts to be spun.

Using a definite illustration, let us assume a 22s yarn is to be spun from a 50-grain sliver using three roving operations and double roving in spinning.

The first step is to determine the "total standard draft" by multiplying together the "standard individual drafts" for the operations which are to be used. In this case take slubber, 4; intermediate, 5; fine, 6; and spinning, 10.5.

$4 \times 5 \times 6 \times 10.5 = 1260$ *standard total draft.*

Next find the "actual total draft" to convert a 50-grain sliver to a 22s yarn, using the standard doublings. A 50-grain sliver is equivalent to a .167-hank roving. To reduce this to a 22s yarn requires $22 \div .167 = 132$ effective draft. However, there are doublings of two ends each at the intermediate, fine, and spinning frames, which means that in each case twice as much draft is required as when but one is fed. Then the "actual total draft" is

$132 \times 2 \times 2 \times 2 = 1056$ *actual total draft.*

The "standard total draft" is 1260, while the "actual total draft" is 1056. This means that the actual individual drafts are less than the standard individual drafts. However, as the total drafts are the results of multiplying together four separate drafts, it is necessary to determine how much less than the standard drafts each actual individual draft shall be.

Of course, it would be possible to reduce the spinning draft until the "standard total draft" is the same as the "actual total draft"; but this would defeat the very end toward which this work aims—the arranging of all the drafts so they are in the proper proportion to each other.

The ratio between the "actual total draft" and the "standard total draft" is 1056 to 1260; but this is not the ratio between the individual drafts, as can be easily seen by finding this ratio and multiplying the standard drafts by it and then together.

To find the ratio between the standard individual drafts and the actual individual drafts it is necessary to find a *root* of the *total* drafts, the specific root depending upon the number of drafts used. In this case, it is the 4th root. When the jack roving frame is used it will be the 5th root, while with two roving operations it will be the cube root.

In this case, then, the ratio is the 4th root of 1056 to the 4th root of 1260.

$$\frac{\sqrt[4]{\text{Actual total draft}}}{\sqrt[4]{\text{Standard total draft}}} = \frac{\sqrt[4]{1056}}{\sqrt[4]{1260}} = \frac{5.70}{5.96} =$$

.9562 *ratio actual to standard individual drafts*

The following tabulation shows each operation with the standard draft, the actual draft, and the size of product resulting from this organization.

Operation	Standard draft	Actual draft	Size
Spinning	10.5 x .9562 =	10.04	22.00s
Fine	6.0 x .9562 =	5.74	4.39-hk.
Intermediate	5.0 x .9562 =	4.78	1.53-hk.
Slubber	4.0 x .9562 =	3.82	.64-hk.
Drawing			50.-grain

LARGE-PACKAGE THROWING

of silk and rayon and package-to-package operations cut costs in half

By I. G. Sanford

◆ *Keen competition in the silk and rayon throwing industry has resulted in a search for ways to reduce costs. In the following article, the author outlines a system of large-package throwing, coupled with package-to-package operations, which in some plants has cut throwing costs in half and, at the same time, has improved the quality of the yarn thrown. The principles discussed are widely applicable throughout the industry and, in some cases, can be worked out with present plant equipment. In other instances, the greatest advantage is obtained by simultaneous replacement of obsolete machinery and installation of the new system.*

PROBABLY the most important recent development in the throwing industry is the systematizing toward package-to-package operations, coupled with increases in the sizes of these packages, whether they be skeins, bobbins, cones, or what not. In many cases this trend is actually cutting throwing costs in half, as well as vastly improving the quality of the yarn thrown. For the most part, this simple improvement in throwing technique can be applied to practically all branches of textiles. It is entirely possible that throwsters are getting their ideas from other divisions of the industry, where for some time there has been a movement toward larger packages. But the most probable reason is the keen competition in throwing and the fact that much throwing machinery is obsolete. As old machinery is replaced, the buyers naturally want the best machines they can get, and these are the machines that produce the highest quality at the lowest cost.

In the field of rayon, throwsters meet stiff competition from the cotton spinners because rayon can be purchased in pretreated (soaked) cones at about the same price as that for first-quality yarn in skeins. Furthermore, this rayon can be twisted without soaking and winding, which on 150-denier often amounts to over 6c per lb. In the field of silk, throwsters have had to cut costs to the bone to meet the competition of rayon generally and of the cotton system of rayon twisting. In view of this competition, the most economical methods that could be applied to each department and to throwing as a whole had to be found. Experiments showed that money can be saved by using the largest packages practicable and by package-to-package operations.

Silk Winding

For a long time, silk winding has generally been on the basis of a skein to a bobbin; but winding costs can be materially reduced and doubling costs greatly reduced by the adoption of bobbins designed to hold two skeins. For the best results, such a bobbin should have a longer traverse, larger barrel, and larger head. It should be made as light as possible and should be equipped with bushings to insure uniform unwinding when on the jack-pins of the doubler or doubler-twister. The three changes in dimensions are necessary also to keep the unwinding uniform. This larger bobbin will permit supply-bobbin changes to be cut exactly in half on the double-twister and also will reduce bobbin changes on the winding machine to half.

For the doubling-twisting operation, machine manufacturers and bobbin manufacturers are cooperating toward the production of spinning packages as long as 7 in. —almost twice the length of the largest bobbin generally in use heretofore and several times the size of the old 5B bobbin. The increase in length is necessary because of the limitations placed on the diameter of the bobbin by ring spinning, and because of the fact that if the barrel is too small, the yarn will not play off in the secondary or up-twisting operation, which practically always follows.

It is obvious that with the larger supply packages and larger spinning bobbins, the cost per pound can be materially reduced, since the production per operator can be doubled or trebled with no more work on her part. She will have fewer runouts and less doffing in relation to her poundage.

Although on the doubler-twister, bobbin-to-bobbin operation is not practicable, for the spinning or up-twisting process it is a most efficient method. Not only will it improve quality and save money in this operation, but also it will assist whatever operations follow.

Despite the obviousness, not every throwster realizes that he is throwing away money every time a twister take-up bobbin is doffed in the time-honored way. Every time an end is broken which has to be pieced up later, it costs something; and, particularly so, when the end is broken in the twisting process and piecing-up entails the pulling off of untwisted or improperly twisted yarn. Yet, for years the general system has been to replenish the supply packages as they run out and to doff the take-up bobbins as all of them fill up. If this is done where the supply bobbin would normally just fill the take-up shaft, it means that one unnecessary break has been made in practically every bobbin produced—with its attendant increase in cost and decrease in quality, due to knots, greater possibility of dirt, etc.

Doubling-Twisting

With a larger supply package from the doubler-twister, say twice the size formerly used, a spinner hand, if he has been doing his own doffing, can attend twice the number of spindles with no more work. If he has not been doffing, he can run almost twice as many, and no doffer will be required, as it will be entirely practicable for him to change the take-up spools when he replenishes the supply package.

The bobbin-to-bobbin system of spinning will, the-

oretically, eliminate any breaks within the take-up shaft. It obviously will mean greatly increased efficiency in the redrawing, coning, or copping operation, which follows, to have supply packages that will run off without a break. Of course, there will be some breaks, but only those which would occur anyway should the spinner-bobbin thread break. Were it not for the necessity of cleaning the yarn after spinning, or if the cleaning could be done elsewhere, this bobbin-to-bobbin twisting, coupled with a larger package, might often eliminate the redrawing operation entirely, saving the total cost of that process.

The spinning system described above lays the foundation for either bobbin-to-bobbin running in the subsequent redrawing or for running two bobbins to a cone, if coning is carried out or some similar procedure followed. This means that operators do not have to worry about run-over bobbins and that cones will have the minimum number of knots in them. Such a system permits operators to produce more, improves quality, and lessens costs.

Application to Rayon

By applying more widely the principles already discussed rayon throwing can be improved even more than silk, since, in the case of rayon, the original package can be put through the entire throwing department intact, with the possible exception of combination yarns, which, because of their many variations and relatively less importance, will not be considered in this article.

Even at present, with relatively small spools, many throwing plants can run through rayon yarns, package-for-package. But to enjoy the most efficient operation with the lowest costs, larger units are necessary. It is entirely possible that eventually this unit will be 1 lb. of yarn, at least for the larger deniers. However, at present, ½ lb. is the largest unit of which the writer knows.

Several rayon producers have been experimenting with various sizes of skeins, but (with the exception of one producer) offer skeins of only a few ounces. This means that the throwster must plan to use two or three skeins together if his package unit is to be ½ lb. There are objections to large skeins on the grounds that they are harder to soak uniformly, take longer to dry, tangle more quickly, etc.; but skeins to ½ lb. in 100-, 150-, and 200-denier will not prove particularly troublesome if handled intelligently. Should the demand justify it, undoubtedly rayon producers could be prevailed upon to cooperate with throwsters in this respect.

Using one skein to a bobbin, or even two skeins to a bobbin, one will find it entirely possible to cut winding costs to half the cost of a haphazard system utilizing small bobbins. The winder bobbin to hold ½ lb. of yarn should be relatively long—4 in. of traverse length or more. Likewise, the barrel should be relatively large, so that the depth of yarn on a full bobbin will not be over ½ in. If the depth is kept to ½ in. or less, the yarn should spin off satisfactorily.

In throwing rayon, since the doubler-twister is not used, the winder bobbin goes directly to the up-spinning machine where, as was mentioned in connection with silk, the most efficient system is to run it bobbin-for-bobbin. Here, it is more advantageous to have a supply package with no knots in it, as the knots may cause the thread to run in a different place in the flyer eye and cause it to pick up dirt deposited there by the motion of the flyer. This results in dirty streaks at knots, similar

to those which occur when a winder hand ties a knot with unclean hands.

Theoretically, if a ½ lb. skein were used, there should be no knots whatever in the spinner bobbin, no possibility of dirt getting into the yarn where the winder would ordinarily tie up the end, and no chance of different lots of yarn being mixed on the same bobbin, no matter how similar.

In the spinning or twisting, an operator should be able to look after two to three times the number of spindles possible with the antiquated doffing and small-bobbin systems; and costs should drop. Care should be taken in selecting the spinner take-up shafts, so that they will not hold a depth of yarn too great for steam to penetrate during the necessary twist-setting. Perforated steaming bobbins are often used.

Rayon Crepe

Mills throwing rayon crepe for their own use do not have to redraw the yarn after steaming if it is to be copped. The yarn can be run over-end and through a cleaner attached to the over-end tension device. In some plants the yarn is copped directly from the iron-head, using the revolving spool or unrolling method; but no provision is made for cleaning in any of the mills using this system that the writer has seen.

In instances where the yarn is to be shipped, it can be redrawn bobbin-for-bobbin or even two bobbins to a bobbin. Thus, operators never have to worry about over-run bobbins, do not have many knots to tie, and can actually redraw 150-denier, as described, for slightly over 1c per lb. piece rate. Using the "half-pound system," it is entirely possible to throw 150-denier crepe (with 50 turns) for a mill cost of 10c per lb.

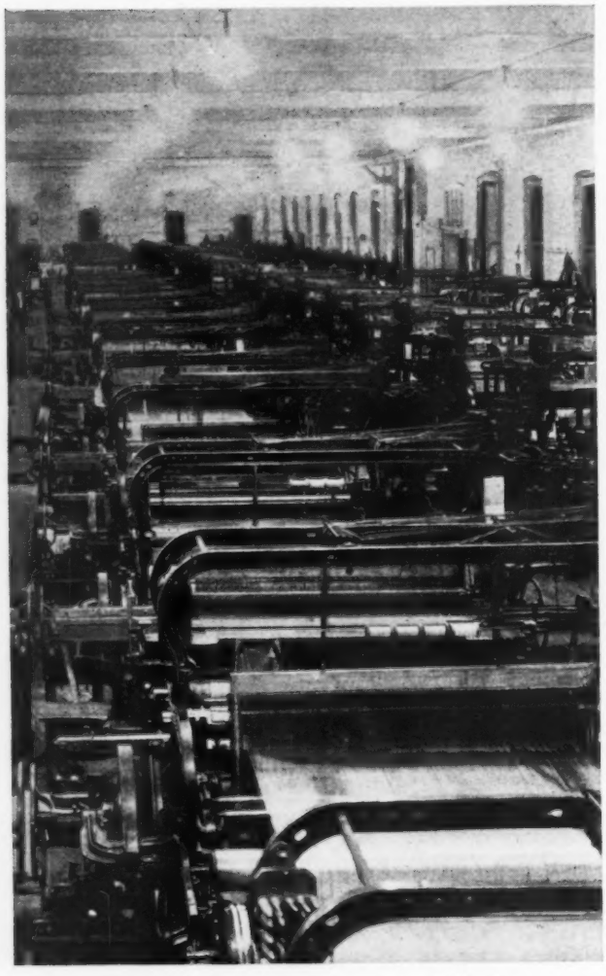
When old machinery is replaced, an excellent opportunity presents itself to take full advantage of the greater efficiency, improved quality, and lower costs possible through larger units and package-to-package systems. In some cases, however, the systems can be worked out on an existing layout. In other instances, it may be better to scrap obsolete machinery and to put in new equipment at the same time the new system is installed.

Prevent friction on warp ends if you would avoid

CORKSCREW IN SATINS

By Fred J. Luettgen
Textile Consultant, Stewartsville, N. J.

Corkscrew is a distortion of the weave caused by uneven tension on the yarn, which, in turn, is due to friction on the individual ends. Since this defect is due to friction, it is necessary to find the reason for the friction. Friction can be traced to many sources. Principal among them are the silk, the whip roller, and the warp.



The major cause of corkscrew is in the warp itself.

CORKSCREW or herringbone is always a source of worry and cost to the manufacturer of satins. This is true especially in the case of pure-dye silks. Many theories have been advanced as to the cause of this defect. Some attribute it to uneven silk; some, to improper soaking; others, to uneven banks on the warping creel; and still others, to faulty winding.

Distortion of Weave

It is impossible, however, for any of these conditions to be the direct cause of the corkscrew. They can be the means of injuring the face of the fabric, but not the weave. A weave cannot be spoiled prior to its formation; but only by faulty mechanical movements of the loom, foreign material obstructing the yarn while in the loom, or improper construction of the fabric.

If silk is of a soft nature, and the harness is dirty or sharp, the silk will begin to chafe in the process of weaving and will accumulate waste in front of the harness and between the harness and the cross rods. This waste will eventually bind itself to a group of ends and will cause the ends to pull and form the defect until the ends again release themselves.

Quite often the whip roller is the medium that causes this defect. It can be responsible for it in numerous ways. If the loom has been running on a fabric which requires considerable tension, the possibility is that the roller is filled with grooves cut in by these warps. When the satin warp is mounted, the ends will then seat themselves in these grooves. Friction is set up when the ends are pulled out of the grooves, thus resulting in uneven tension on the warp of the fabric. In order to prevent this uneven tension, a well-regulated mill usually puts a paper around the whip roller when mounting a satin. Sometimes the whip roller binds, due to the side brackets being too close, with resultant friction on the ends. Friction also occurs when the cords holding the cross rods become dirty and sticky. It is always a safe plan to tie these cords onto the side brackets, so as to give the whip roller perfect freedom.

Major Cause

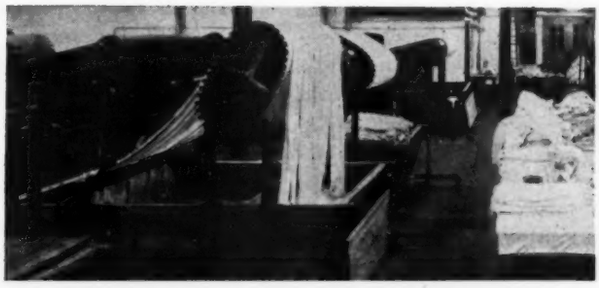
The major cause of corkscrew appears to be in the warp itself. In beaming the heavier satins, one always finds that it is difficult to keep the circumference of the warp to a minimum. The result is that the warper usually will pile all the silk possible on one paper. Considerable tension is put on the warper to prevent the edges from falling. This tension causes the ends to imbed themselves into the silk. When the next paper is put on, these ends are pressed in still more firmly. After the ends have remained in this condition for several weeks, considerable tension must be exerted when they are released in the process of weaving. Fortunately, a corkscrew from this cause is quite easily detected, because the defect makes its appearance immediately after a paper comes off the warp and then diminishes until the last few turns on the paper, when it disappears entirely. That it is a major problem is shown by the fact that some of the more enterprising manufacturers are equipping their warping frames with an attachment on the beamer similar to a cam on the winding frames. This permits the warp to travel sideways for a distance of 0.5 in. either way while beaming. The layers of silk on these warps cross one another at an angle. This prevents individual ends from imbedding themselves and avoids loose edges.

The defect occurs also when a warper runs a section with a closed cross. In this case, however, the condition is purely local, because the weaver will complain about it and the overseer will rectify it at once.

Attention to details will prevent undesirable hairy fabric surface in

DYEING STAPLE RAYON

By L. A. Jordan



◆ *Growing use of staple rayon in the manufacture of woven and knitted fabrics has brought new problems to the dyer. One difficulty which is being encountered is in the production of a smooth, sleek finish, free from hairiness. In this particular connection, friction has been found to be the greatest foe of the dyer. In the following article, the author discusses one part of the dyeing machine which has given trouble and shows how the danger can be minimized. Realizing the importance of avoiding friction on the surface of the fabric, the dyer can guard against it at other points on the machine. While the discussion refers specifically to woven fabrics, much of it is equally applicable to knit goods.*

FROM the viewpoint of the bleacher and dyer, one of the disadvantages of fabrics woven from rayon staple fiber is that such fabrics readily acquire a hairy surface. For most purposes, this hairiness is objectionable, as at the present time most stable fiber fabrics are required to have a full wool-like handle accompanied by a clear, smooth appearance. Bleaching and dyeing processes must therefore be adapted to secure this result.

The strong susceptibility of staple rayon fabrics to become hairy lies in the poor degree of cohesion between the individual fibers in the yarns which constitute the fabric.

The repeated flexing or rubbing of the fabric displaces these short fibers, so that their ends point through the yarn or fabric surface. Until some means can be discovered for increasing this cohesion, it is necessary, therefore, to wet process the fabric with the absolute minimum amount of friction and distortion. Practical experience in dyeing staple fiber fabrics has emphasized the importance of certain precautions which are mentioned below.

Although it is not usual to singe filament-rayon fabrics, it is quite essential to give a staple fiber fabric a thorough singeing on both sides. This process serves to remove all hairiness which may have resulted from weaving operations, and is not at all harmful to the viscose rayon. Double singeing is sometimes found advisable.

Scouring and Bleaching

Cleaning of the fabric in preparation for dyeing can be carried out simply, since the fabric contains no natural impurities, such as are found in cotton fabrics. If the warp yarns have been sized with a starch or starch derivative, the fabric should be led from the singeing machine through a padding mangle fed with a solution of a desizing agent and then piled in rope form for 2 to 3 hr. The goods should then be led through a rope washing machine fed with hot water containing a small amount of soda ash, and again through another washing machine to remove the alkali. After this purification, the fabric is ready for dyeing in ordinary shades; however, if it is required to produce bright, clear colors the goods should be bleached in rope form with dilute sodium hypochlorite solution or with peroxide.

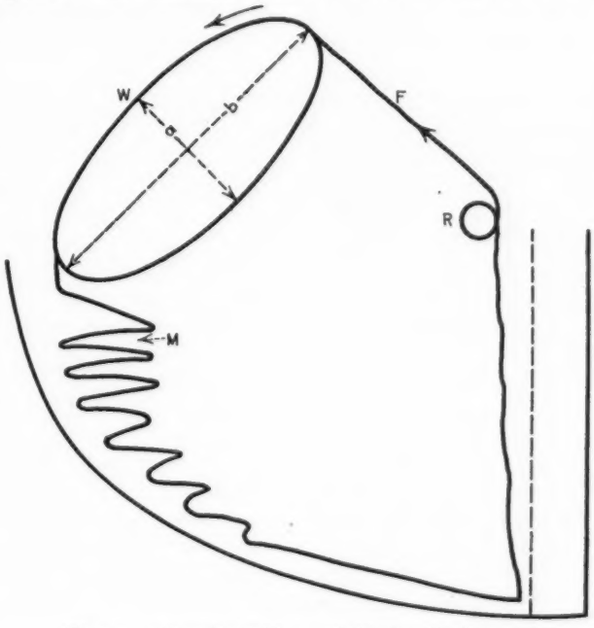


Diagram of reel machine suitable for dyeing rayon staple-fiber fabrics

During the scouring and bleaching operations, the

fabric must be guarded against rubbing of any kind, particularly while passing through pot eyes or other stationary guiding devices. In general, it is much better not to allow the fabric to pass over anything stationary, since this is certain to result in friction, which raises the fabric surface and thus causes hairiness.

Contrary to a first opinion, it is preferable to dye staple fiber fabrics in a reel machine. In many ways, and especially from the viewpoint of economical consumption of dyes and ease of manipulation, it would be simpler to dye the fabric on a jig. Despite these advantages, the reel machine is definitely better, because it leads to the production of a better handle in the fabric. If two similar fabrics are dyed, one on a jig and the other in a reel machine, it will be found that the reel-dyed fabric is much fuller and more wool-like in handle than the jig-dyed fabric. This is due to the fact that on the jig the fabric is subjected to considerable warp tension, and this prevents the yarns from swelling and becoming thicker as a result of the individual fibers in the yarns becoming looser.

Unfortunately the conditions encountered in reel dyeing also tend to give the fabric a hairy surface. For this reason, the dyeing time should be kept as brief as possible. Still more important, however, in avoiding hairiness is one feature of the reel machine itself.

Reel Machine

A typical reel machine which is suitable for dyeing staple fiber fabrics is shown in Fig. 1. It should be noted that the reel *W* is elliptical and that the major and minor axes (*a* and *b*, respectively) of the ellipse differ widely; this results in plaiting down of the fabric *F* in comparatively large folds as shown at *M*. There is also a guide roller *R*, over which the fabric passes on its way to the reel.

Owing to the elliptical form of the reel, the fabric is drawn forward at a rate which is continuously varying; this is one of the disadvantages of an elliptical reel, compared with a circular one which draws the fabric forward at a constant rate. As a direct result of this, the rate of rotation of the guide roller varies in the same manner. The roller *R* is mounted in a bearing, so that the fabric drags the roller round while passing over it. While a freely rotatable roller is preferable to a stationary guide rod, there is set up considerable friction between the fabric and the roller. It is essential, therefore, that the friction between the fabric and roller *R* be reduced to the absolute minimum, otherwise there is a grave danger that the fabric surface will be made quite hairy. Reduction of friction can be achieved by mounting the roller in ball bearings, and by making the roller as light as possible and having its surface free from all roughness. It is surprising how careful attention to the guide roller can make a great deal of difference to the hairiness of the dyed fabric. If the machine is constructed with a heavy, rough wood roller (as sometimes it actually is), the dyed fabric can become so hairy as to require another singeing treatment.

Recently, reel dyeing machines have been introduced in which special gearing is incorporated to so control the rate of rotation of the elliptical reel that the fabric is drawn around it at a constant rate. Obviously, machines of this type are preferable for dyeing rayon staple fiber fabrics. However, even with the older type of equipment, if the precautions mentioned above are taken, the dyer can turn out satisfactory work.

Several processes now in use for treating cotton fabrics to produce

PERMANENT

◆ *In the July issue, Mr. Gibbons pointed out that the problem of producing a permanent finish on cotton piece goods has been given a great deal of attention over a period of years and that a number of methods have been developed for treating fabrics which will stand laundering. He then described in some detail the viscose process for producing permanent linen-like effects. In the following article he discusses several other methods which are now in commercial use.*

WITHIN recent years a number of chemical manufacturers have developed solutions of cellulose or cellulose derivatives which can be used to produce permanent finishes on cotton fabrics. In certain respects, these compounds resemble viscose chemically and the effects obtained are quite similar. They have the advantage of being more stable than viscose at high temperatures and upon storing. However, they are considerably more expensive than is viscose.

One of these compounds, which is essentially a 7% sodium hydroxide solution containing 8% of a cellulose derivative, is a thick sirupy liquid, the solids of which are precipitated by water, acids, and acid salts. It can be applied to cotton fabrics (either in its original concentration or diluted with a 7% caustic soda solution), by impregnating on a padder or other machine. The excess is removed by squeezing, and precipitation effected by passing the goods through an 18% solution of sodium bisulphate, or by a thorough washing with water.

Another compound (U. S. Patent 2,009,015) is described as a true cellulose solution in an organic alkali, such as dimethylphenylbenzyl ammonium hydroxide. It is applied to the fabric in a similar manner and the cellulose is precipitated to give a permanent finish by treatment of the fabric in dilute acid. In addition to giving a permanent linen-like or organdy effect, this compound also produces swelling and mercerization of the cotton fibers.

Heberlein Processes

Both concentrated sulphuric acid and concentrated caustic will act on cotton goods to produce a finish which cannot be removed by repeated washings. In the case of the acid process, it is necessary first to mercerize the goods in the ordinary way and then treat them with concentrated sulphuric acid of 50½° Be. or over for a period as short as 5 sec. The period of treating the goods depends on the weight of the fabric treated and the temperature of the acid. However in the case of the caustic alkali treatment the temperature must be at 0°C. to get good results.

These processes have been used also to produce crinkle effects on cotton goods. In this case the acids or alkalis are printed on the fabrics by means of rollers, so that a definite pattern is secured. The processes, which are known as the Heberlein processes, have been described at length both in the patent literature and in technical publications. The original Heberlein patent (U. S. Patent 1,141,872) on the use of sulphuric acid has now

By John T. Gibbons
Textile Consultant

FINISHES

expired. Improvements on it have been covered in later patents (e.g., U. S. Patent 1,439,512) and use of caustic is also protected by patents (e.g., U. S. Patent 1,439,519).

Casein and Formaldehyde

The casein and formaldehyde method is a very old process for the production of a permanent finish, and depends on the action of the formaldehyde on the casein to render it insoluble. The casein is mixed with warm water (about 1 lb. to 1 gal., the concentration depending on the degree of stiffness desired). About 15% of trisodium phosphate calculated on the weight of the casein is also dissolved in water and added to the casein water mix. A solution is formed which has a slight yellow cast. This solution is then padded or coated on the fabric and the fabric is dried on tenter frames or over steam cans. Then the fabric is passed through a solution of formaldehyde in water (generally a 5% solution) and the fabric is again dried. This treatment with the formaldehyde makes the casein insoluble and the finish will withstand several washings. The odor of the formaldehyde can be removed by the use of ammonia, and the odor of the casein by the use of one of the many deodorants now being sold for this purpose. This particular process is frequently employed as an undercoat for other coatings, and is especially useful for that purpose.

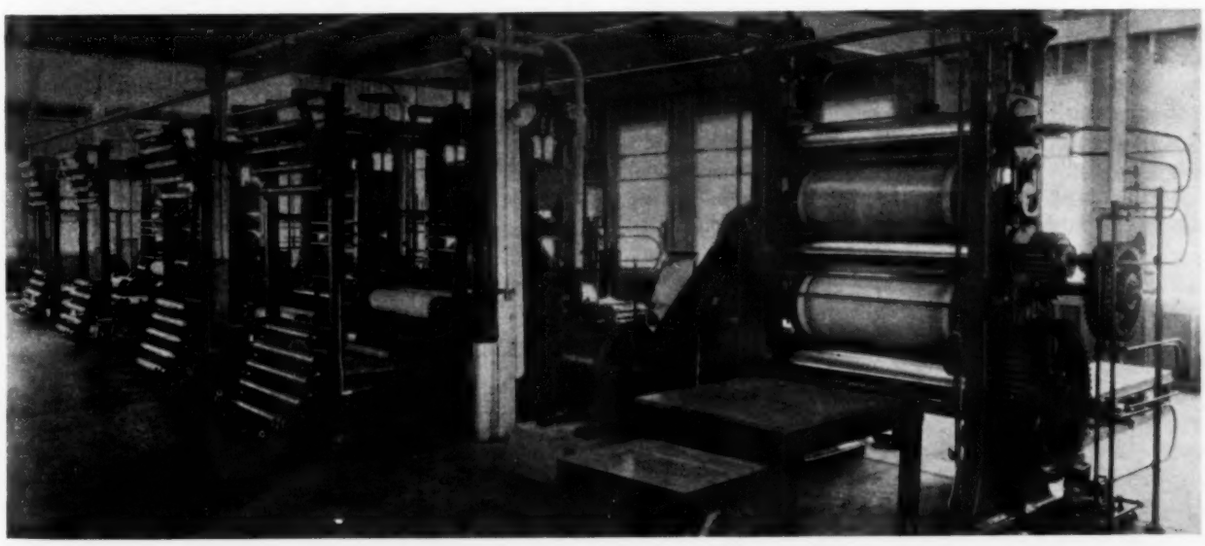
During the last few years a number of methods have been developed for producing special finishes with various synthetic resins. Examples are the anti-crease finish produced according to the Tootal, Broadhurst & Lee patent (U. S. Patent 1,734,516 and TEXTILE WORLD, September, 1932), the Fiber-Bond finish (TEXTILE WORLD, July, 1935), and different types of coated finishes. Considerable experimental work has been carried out on the production of permanent finishes of the type which we are considering in this article. It is possible to obtain a good appearance and hand with the synthetic resins. However, the finish obtained thus far does not withstand as many washings as do those produced by the viscose. alkali, and acid treatments. Further work on the synthetic resins may overcome this disadvantage and result in their more extensive use.

Cuprammonium Method

Many attempts have been made to use cuprammonium solutions in the production of permanent finishes. In the past, however, the cuprammonium process has been difficult to carry out commercially, due to the instability of the cuprammonium solution. In addition, the cost of the materials employed has been relatively high. A recent patent granted to William H. Furness, covers the use of a stable solution which will stand for several weeks without jelling. It also is possible to recover the copper from the waste liquors, which is important when the price of metal is high.

Another improvement over the old cuprammonium process is claimed by de Goncz, in U. S. Patent 1,661,879, assigned to Arnold Print Works. In this process the goods (previously scoured to make them absorbent) are first treated for 6 to 8 sec. at room temperature with a caustic soda solution of about 19° Tw., squeezed, treated for a few seconds in a cuprammonium solution, squeezed, framed, neutralized in a dilute acid solution, washed, and dried. This method imparts a linen-like permanent finish to the fabric.

For many purposes permanent finishes have obvious advantages over the older types of finishes which disappear when the fabric is laundered. In the last few years interest in permanent finishes has grown, and it appears certain that finishes of this type will continue to be increasingly important. This article and the one in the July issue have reviewed briefly the more important processes which are now being used commercially. There are, however, a number of other compounds which can be employed to give finishes of a permanent or semi-permanent nature. For this reason, firms which are contemplating the production of permanent finishes should make a thorough investigation of both the technical phases of the subject and the patent situation.



Generally, after the goods have been treated chemically, they are washed and dried and then are calendered to bring out the finish.

CONTINUOUS DYEING

Of pile fabrics can be accomplished by means of a 10-bowl machine

By Frank G. Kilduff

FOR several years experiments have been going forward in an effort to improve on the ordinary batch method of dyeing pile fabrics. As a result, it has been found possible in some instances to dye plushes by a continuous process which is comparable to continuous scouring or to a system of long-chain dyeing. One application of the continuous system, for example, is in processing fabrics for the automotive trade.

As can be seen from the accompanying sketch, the machine set-up consists of ten bowls, the first six of which are used for scouring. All pipes and fittings should be made of corrosion-resisting materials. The seventh bowl contains only the rollers and pipes of a vacuum extractor; since it is necessary that the vacuum in these pipes be kept at the highest possible efficiency, slot covers of the collar type or felt are employed. The eighth bowl is used as the dye tub, and will be discussed in detail later. The ninth bowl contains cold water for the first rinse; it is necessary that this bowl be kept full and constantly changing, preferably through a partly opened drain, as well as the overflows; the writer prefers, in connection with this, a spray system through a 2-in. water line directed squarely at point of contact of a set of large rubber squeeze rolls located between the eighth and ninth bowls. The tenth bowl contains a cold water rinse similar to the ninth.

Following the second rinse, the cloth again is vacuum-extracted and passed continuously to the dryer.

The eighth bowl, the one that is used for dyeing, has the usual three rollers and is heated by steam coils. A mother tank, usually another bowl of exactly the same dimensions, is connected to the dyeing bowl from a position at one side of the line and at the same level. Between the two is a circulation pump connected by means of a 1½-in. line to the bottom of the mother tank and to the dye tub through the side in two places. It reaches across the tub and is bored for spraying, the spray being carefully directed away from the fabric. A drain plug, of course, is not necessary in the dyeing operation; but at the liquor level an overflow is connected back to the mother tank.

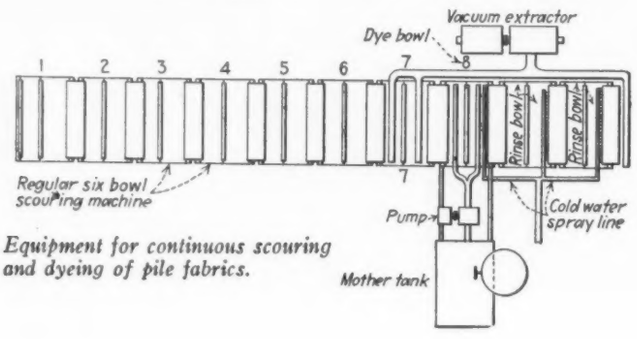
During dyeing, condensation must be kept down and the cloth entering the tub must be held to minimum moisture content; otherwise it is difficult to maintain the formula. All rollers under which the cloth passes must be as free running as possible, in order to avoid laying the pile or producing an undesirable luster. Liquor in both bowl and tank should be at approximately the two-thirds level, measured at a dyeing temperature of 200°F. —such measurement to be incorporated in the formula.

The pile yarns in the fabric originally put through by the author were 50-50 blended mohair and worsted. These were dyed with acid colors in a glauber salt and formic acid bath. The cotton back had been woven from yarn previously dyed with sulphur colors.

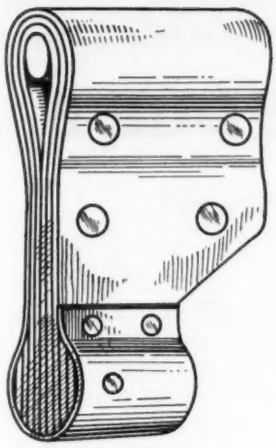
It is impossible to give definite instructions as to the percentages of dyes, salt, and acid to be used. The following suggestions, however, will be of assistance in working out formulas: As a start, take a formula which has been found satisfactory for dyeing by the batch method, dissolve the dyes, strain, and make up to as many liters as there are hundreds of yards of cloth. Bring the water in the dyeing bowl to the proper temperature, start the pump, and so adjust the inlet and overflow pipes that the entire volume of water is circulated every 2 min. To this circulating liquor, add 10% of the dissolved dyes and 10% of the glauber salt and formic acid called for by the formula. Start the machine and add the remaining dyes, salt, and acid, to the mother tank very slowly, and so consistently that the chemicals run out with the last yard of material. A glass tank with drip may be used if properly calibrated.

A further suggestion is that the first few lots put through be dyed to the proper tone and shade, but only to about one-half the required depth of shade. Then the goods can be taken to the regular tub and shaded up. This procedure gives the operator confidence and experience, and helps him in developing an exact formula. Should there be any unevenness of color or streakiness, a boil in about 20% glauber salt (without acid) for 20 min. will level most shades. After cooling the bath to 170°F., additional dyes and acid can be added if necessary. This method should be used only until the operator is sure that his continuous formula is correct.

As a final word of warning, it should be stated that the hot fabric should not be allowed to go through the rubber squeeze rolls between the eighth and ninth bowls, unless the cold water spray is hooked up before the goods reach the point of contact. Also, the operator naturally should be careful not to let any of this rinse run back into the eighth bowl to dilute the liquor. In dyeing pile fabrics with acid colors, a cloth speed of 4 yd. per min. gives satisfactory results. With higher speeds, color control is more difficult.



Equipment for continuous scouring and dyeing of pile fabrics.



A LOOM PICKER

Is often considered a simple article and its application a minor operation. I disagree.

By Benjamin F. Hayes

I AM now fixing a section of wool looms that I fixed twenty years ago; and I find that looms, like human beings, do not all stand the test of time equally. One important part of the loom that wears out is the inside bearing of the picker spindle. One time a weaver of 30 years' experience told me that he had never seen any loomfixer place a picker on the loom the way I did. My scarcely modest reply to him was that, in my opinion, if what he said were true, he had never seen a fixer put on a picker correctly. If all the fixers who have handled these looms since I last saw them had placed the picker on in the proper way, the machines would be worth much more than they now are; and the weavers, fixers, and management would be better off.

Placing a picker on a loom seems to be such a simple operation that the inexperienced may be excused for thinking that nothing is required but a screwdriver and monkey wrench; but the manner in which this simple operation is carried on determines the life of the picker, the breakage of warp threads, the safety of the weaver, and the life of the loom.

Now the method which I have followed successfully for many years, and which I believe to be the only right one, is as follows: First, make certain that the picker spindle will be centered with its inside bearing before the spindle is placed in that bearing. Many times it will be found that, when the spindle is made fast by the set-screw of the outside bearing, the inside end of the picker spindle will be 1 in. away from center of the bearing. I always prove the line of the spindle by fastening it before placing the inside end into its bearing, and I make it central to that bearing by either packing or filing the outside bearing.

If all loomfixers would follow this procedure, I would guarantee that all the inside bearings of picker spindles would wear for 40 years, and this is long enough for most looms to last.

On this section of looms to which I have referred, I find many bent pickers. What has happened is that the outside picker spindle bracket has lost its correct fit and the fixers have felt it necessary to bend the pickers. It is the practice of many fixers to examine the pickers as they take them off the looms and, if they are bent, to bend the new picker to correspond. Thus they save time temporarily, and sometimes this saving is necessary; but at the same time they run the risk of the pickers breaking. It may take an hour to do the job right; but unless the correct adjustment is made, time will be consumed in bending pickers every time new ones have to be applied.

Sometimes it will be found that the hole in the picker made by contact with the shuttles is too high or too low. If the former, the boxes are too high on the outside end, and it will be necessary to raise them on the inside and lower them on the outside. Of course, the process is reversed if the hole made by the shuttle is too low.

Sometimes we find the hole too near the outside of the picker head. If the pickers in use are of the right size, the lay requires truing up. This must be done only when the warp is out.

Very often, when we find the hole too near the outside of the picker head, we also find the picker spindle bent so as to force the picker away from the boxes. When we place new pickers on such a loom, we must straighten the picker spindle and then place a piece of cardboard between the outside edge of the outside box guide and the lay in order to force the boxes inward. Forcing the boxes inward in this manner causes the shuttles to strike near the center of the picker heads. Thus, in place of the picker being damaged beyond repair in one week, it may run for six months—and I have often seen them run for more than a year.

Now suppose that we have a picker which makes the hole too far inward. In this case the picker spindle will, of course, be bent in the opposite direction to that just discussed and the lay will be out of true in the opposite direction. If there is no warp in the loom, the lay end may be trued up before the new picker is applied. If the warp is in, it will be necessary to straighten the picker spindle and place packing in the outside box guide in such a manner as to force the boxes away from the lay.

There must be no guesswork in the centering of the picker. To prove that the centering is correct, assuming that the spindle is straight and that its front bearing is centered, place the shuttle firmly against the reed and front box guide; then bring the picker forward to the tip of the shuttle and scratch the picker up and down and in and out without moving the shuttle from its position. The crossing of the lines thus made must center with the picker head. Now place the shuttle in the box and note whether the tip of the shuttle centers with the crossing. If it does not, keep the shuttle in the box and make it center by forcing the outside box guide in or out as may be necessary. Of course, this method of lining up the lay is practical only when it is a little out of true, but it is better than attempting to true up the lay end when the tip of the shuttle misses the points where the lines cross by only 1/16 in.

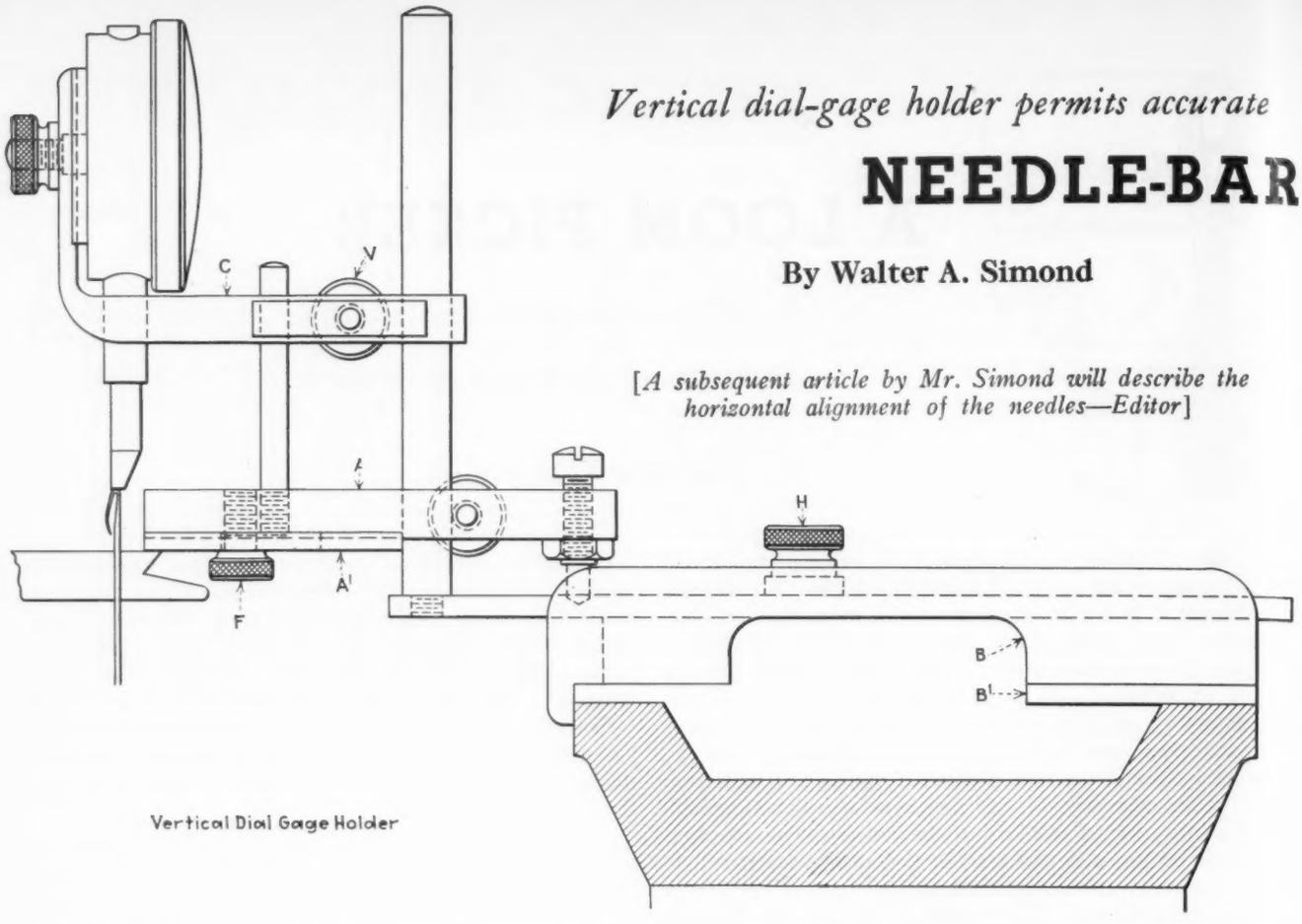
Of course, the position of the boxes has a large bearing on this matter, as I shall explain in a later article.

Vertical dial-gage holder permits accurate

NEEDLE-BAR

By Walter A. Simond

[A subsequent article by Mr. Simond will describe the horizontal alignment of the needles—Editor]



Vertical Dial Gage Holder

ACCURATE alignment is the secret of success in the adjustment and operation of all flat knitting machines, and particularly is this true of full-fashioned machines in which the needles are set in solid bars and work in unison. The movements of the needle bars and all cooperating parts are intricate, as has been clearly shown in the excellent articles by Max C. Miller, which have been published in TEXTILE WORLD. It is the purpose of the writer in this and other articles to show how we are attaining our present degree of machine alignment and how a better alignment can be easily and rapidly obtained.

Manufacturers and machine fixers may not agree with all my findings, as these machine movements are so complicated that there are several ways to accomplish desired results, although there is but one best way. For example, in the matter of the heighth of the needle bars, some fixers prefer standard gage heighth; some set them a little lower to prevent twisting of the stitches while they are passing down the incline of the sinker nibs; some put them only a trifle below the incline for silk, so the stitches will not drag; and there is one make of machine where the tops of the needles are actually above the sinker incline when the needles drop back from the press.

You can set a little off standard if you wish or to meet special conditions; but that calls for a special setting of the landing bits in the needle cams in order to hold the selvages safely. Again, you may need to adjust so the tops of the needles will pass just inside of the sinker throats as they rise, and make changes of the knocking-over bits or adjustments to get a clear stitch.

Standard Gage Height

Standard gage heighth is best and should be used if possible. When the cam bits are raised or lowered for off-standard settings, the cam rolls pound in passing over such bits. This is especially objectionable with the modern high-speed machines, as the cams will wear unevenly. The cam bits are usually found at high points in the cam contour, where the wear is greater, and should be raised only enough to compensate for such wear.

Ordinarily, the most important adjustments to obtain a clear stitch are such as will cause the stitches to land only a little back of the V notch in the knocking-over beds and then to have the needles draw deep enough to pull this last course of stitches through the preceding one as far as possible without straining the yarn in these courses.

It is obvious that if the needles are not level, the high needles may tuck stitch and the low needles may fracture the fabric. The same principle applies conversely to the cooperating knocking-over beds.

Excessive Variation

In the recent erection of several new machines the needle-bar heighth was set on one or two heads with the standard gage and then the needles were drawn down until the tops of the needles in these heads were exactly even with the tops of the sinker banks. The machine was locked and the other heads were set by feeling for the tops of the needles with a thin straight-edged steel scraper. Being anxious to know just how accurate the needle bar heights were in these new machines, I secured a dial gage and made a little holder for it, such as is shown in the accompanying diagrammatic sketch. The holder and dial gage are mounted on the horizontal slide of my universal gage, with only minor changes from the one shown in an article published in TEXTILE WORLD in March, 1933. With the foot of the gage holder resting on the sinkers, the dial was turned to a zero indicator reading and the heighth of the needle bars was tested on

ALIGNMENT

on full-fashioned machines

several machines. I expected to find a variation of not over 0.002 in. plus or minus, but the best machine had a total variation of 0.009 in. and the next best 0.01 in. The others ranged up to 0.015 in.

With the new method, we preferably set all the needle bars with the needles up and sinkers drawn outward when the cam peripherys are not worn. If the cams are worn, we can set from the narrowing cams and position with the needles showing above the sinkers and the sinkers a little outside of the needles. In this way, we can set the holder foot on the sinkers. With the needles up, the dial gage is set directly over the first arm and the dial gage is adjusted to a zero reading, with the dial gage foot resting on the tops of the needles as shown in the sketch. We can now put a scale or set block just outside of the needles, which is a little higher than the needles; and by deducting the difference shown by the dial indicator, we can determine the needle height. However, a better way is to have a set block of the exact height desired with which to set the dial gage.

In resetting the needle bars, it is best first to ascertain if the average height is right; if it is not, make it right by a uniform movement of the cam rolls. After this the slight adjustment needed can be made at each needle bar arm. When you have completed the setting, you can check your work by returning the gage to the first arm; if it reads zero, you can be sure that the intermediate heads are all correctly set and that you have an accurate alignment. The advantage of this method is that, when you set the gage down, you have both hands free for the adjusting and locking wrenches. When you have to adjust from the back of the machine, your knitter can tell you when you have reached the zero setting.

When we had stationery knocking-over beds, it was best to move the bits in the needle cams to suit the different counts of yarn used. With the modern movable knocking-over beds, we not only have a choice of two heights of operation, but they are adjustable by the cam-roll screws. We used to move so many faces or quarter turns, but some cam rolls move harder than others and we could not be sure of a uniform movement. The dial gage placed over the adjustment will tell you how much you move the beds or any other part of the machine.

Knocking-Over Beds

The height of the knocking-over beds is now set to a thickness gage inserted between the sinkers and the knocking-over beds. If, however, the machines have been operated until the sinkers have worn into the cap plates, as a result of the rocking action of the catch bar, the thickness gage will lift the sinkers and a higher than normal setting will result. With the new method, the dial gage measures from the top of the sinkers, as it did for the height of the needle bars; therefore the proper relative position of the knocking-over beds is obtained. Rocking knocking-over beds have but one adjustment or train of adjustments, and it is best to gage this type from the center of the beds to compensate for the slight misalignment usually found in this type of bed (0.002 in. or less). All other adjustments should be gaged as nearly as possible over the adjusting screws or in the planes of adjustment to avoid the necessity of later corrections.

With the auxiliary base plate removed and the base resting on the top table only, any abnormal setting of the sinker beds can be detected easily. Slight variations are usual and can cause no trouble when the needle bar and knocking-over bed height bear the right relation to those of the sinker banks.

While all full-fashioned machines should be corrected for misalignment periodically, in ordinary fixing, any head requiring readjustment can be quickly brought to the correct height with the dial gage; and you know whether and how much to move the needle bar, the knocking-over bed, or both. It takes but a few minutes to make a record of the needle bar and knocking-over bed heights, as shown in the following example:

Heads	1	2	3	22	23	24
Needles	–.001	–.001	–.001	+.004	+.022	+.014
K. O. Beds	–.001	.000	+.015	+.018	+.026	+.022

From this record we learn that Heads Nos. 3 and 22 have knocking-over beds that are 0.014 in. too high and that some one probably found it easier to raise the beds at Nos. 23 and 24 than to put the needles back where they should be.

On the last machine tested by the writer after a realignment the needles in the first four heads averaged +0.0025 and on the next four +0.01525, showing that the machine moved because it was not firmly locked. The record showed that the needle bars were set beginning at the right end of the machine and that there was a slow slippage until the fourth head was reached, when a sharp rise of about 0.014 in. occurred. The actual difference between the end heads was 0.031 in. Such records kept over a few-years' time will enable one to determine much about the stability of the buildings where the machines are in operation and the effect of seasonal temperature changes. These height charts would be more valuable than horizontal measurements, since the latter adjustments are more subject to change.

Gage and Holder

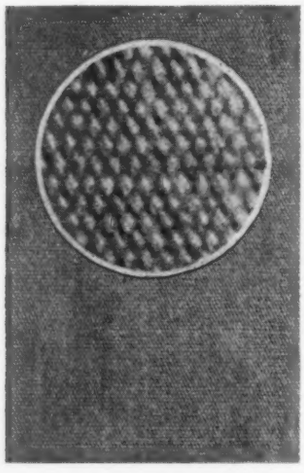
In the accompanying sketch, *B1* is an auxiliary plate fastened to the universal gage base *B* to afford a clearance under the gage base at the front of the machine table rail; *H* is a knurled screw head where the horizontal slide is secured to the gage base; *A* is a measuring foot which rests upon the sinkers from which the measurements are made; and *V* is a screw which clamps the vertical slide *C* after the dial gage has been lowered to bring the dial pointer to an approximate setting from which the absolute zero setting can be quickly had by the rotation of the dial in the usual manner.

In measuring the height of the knocking-over beds, the foot slide, *A1*, is moved forward the length of the screw slot and secured by screw, *F;* the knitting machine needles are drawn down until the tops of the needles are about even with the under edges of the sinkers; the machine is locked; the horizontal slide reset; and the dial gage lowered until the gage foot is below the measuring foot and resting upon the knocking-over bits.

STAPLE COTTON FABRICS

By John Hoye

ANOTHER instalment of one of the most outstanding contributions ever made to textile literature. The fabric magnifications are 5½ times true size, which is about the average magnification of pick glasses.



Reeves Bros.

COMBED POPLIN (2 x 1)

38" 102 x 50 3.25 yd.

Poplin

A characteristic of *poplins* is the rib effect which runs across the width from selvage to selvage. This effect is formed (a) by the use of a heavier filling yarn and a finer warp yarn and (b) by the use of about half as many threads per inch in the filling as in the warp. The weave is plain. The best poplins are made of combed yarns, usually ply in both warp and filling or at least ply in the warp and single in the filling. Cheaper poplins are made with carded yarns. Weights are usually between 3.25 and 4.00 yd. per pound for the 38-in. width. Poplins are sometimes made with colored-yarn stripes, sometimes with Z- and S-twist warp yarns grouped to produce shadow stripes, and also with slub-yarn filling forming shantung effects. Where very coarse rib effects are desired, two- or three-ply heavy, coarse yarns are used. These are referred to as *grosgrain poplins.*

Finishes used: Poplins are usually mercerized and chased, the combed qualities finishing with a higher luster. Poplins are also bleached and dyed, usually in vat colors. They are also printed. The better qualities are usually preshrunk.

Uses: Shirts, blouses, boys' suits, uniforms for nurses and doctors, robes, gowns, draperies.

Widths		Constructions
28"	37"	80 x 40 to 100 x 52
37½"	38"	also up to 122 x 40

Warp Yarns	Filling Yarns
30s to 50s	25s to 30s
50/2 to 80/2	

Examples of Poplins

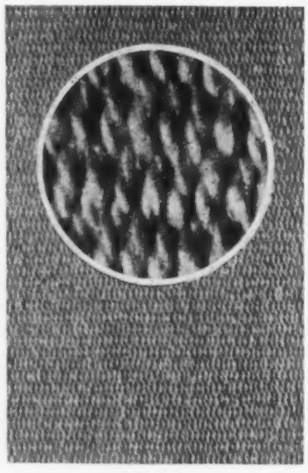
Combed yarns:			
37"	102 x 48	3.40	2-ply warp single filling
38"	102 x 52	3.39	2-ply warp single filling
38"	96 x 40	3.83	2-ply warp single filling
37"	88 x 40	3.40	2-ply warp single filling
38"	80 x 40	2.85	2-ply warp single filling
37½"	116 x 52	3.80	all single
Carded (single) yarns:			
37½"	116 x 48	3.60	
37½"	100 x 44	3.90	
28"	100 x 44	5.30	
38½"	96 x 40	2.85	
38"	80 x 40	3.40	
Grosgrain poplin:			
36½"	110 x 26	2.50	

Rep

Rep or, as it is sometimes spelled, *repp* has a rib running across the width as in the poplin, but in this case the rib is more pronounced. It can be formed in three ways:

A. Tension.—By the use of alternate slack and tight (or "tension") warp yarns, The tension rep can be (1) plain weave or (2) a weave in which two warp threads are woven as one with one filling and the next warp thread (tension) is woven with one filling. The use of the slack and tension warp threads gives a distinct filling rib.

B. Two or more coarse filling yarns woven as one.—The cloth is woven with first one pick of filling yarn in the shed; and then, on the next pick, the shed is held open so that two or three filling yarns are



REP

(Picks grouped 1 and 3)

37½" 62 x 30 2.10 yd.

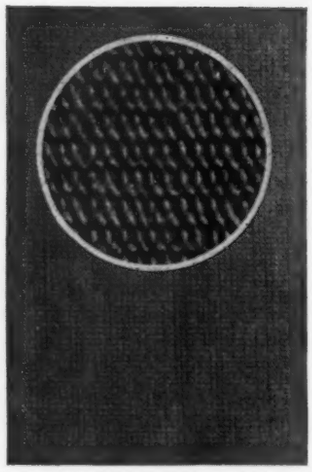
woven as one. This arrangement is repeated throughout the goods and gives an alternately fine and heavy rib effect. The warp is usually made finer than the filling. This type of rep can be varied by weaving two or three filling threads as one throughout, an arrangement which gives a regular, coarse, rib effect.

Finishes used: Mercerized, chased, often preshrunk. Bleached or vat dyed, or printed.

Uses: Blouses, shirts, shorts (lighter weights). Heavy, coarse-rib reps of ply yarns in 50 in. are made for the upholstery and drapery trades.

Examples of Types A and B

Type A:			Type B:		
37½"	136 x 48	4.00	37"	116 x 60	4.10
37½"	96 x 44	3.80	37"	116 x 68	3.95
37"	96 x 42	4.40	37"	116 x 68	3.95
38"	105 x 44	3.57	37½"	62 x 30	2.10
37"	126 x 68	3.95	(3 filling threads woven in each pick throughout in last construction)		



COMBED TENSION REP

37" 128 x 68 3.95 yd.

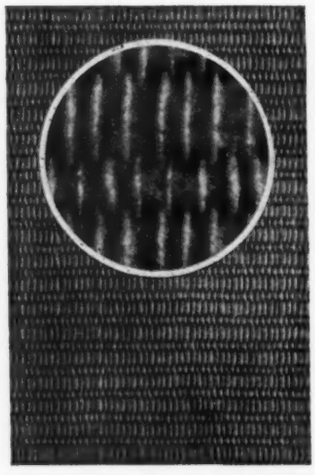
In reps *B* and *C* the construction of the cloth, especially in the warp, should be such that the warp threads do not slip or pull out of position.

C. By using a low number of coarse ply-yarn filling threads per inch. These are heavy, coarse-rib reps referred to as *drapery reps.* They are plain-woven cloths made with ply yarns in both warp and filling, and usually with many more threads in the warp than in the filling. They are made in 50-in. or greater widths.

Example of Type C: 50", 72 x 15, 1.30, ply yarns, plain weave.

Warp reps or moreens are made with the rib running in the direction of the warp. The weave is plain and the construction is such that there are about twice as many threads in the filling as in the warp. The use of the cloth is limited to embossed moiré finishes. Moiré-finished effects show up best on ribbed fabrics, because in the embossing parts of the ribs are flattened out and these show up in contrast to the rest of the cloth. The reflections of light given off by the portions of the cloth which are flattened make a contrast with the reflection provided by the unembossed surface.

Example of warp rep: 39", 50 x 100, 3.90.



Wellington Sears Co.

DRAPERY REP

50" 72 x 15 1.30 yd.

You have to know your way about when comparing hygrometer and psychrometer readings on

By R. H. Brown
Research Engineer, Parks-Cramer Co.

RELATIVE HUMIDITY

MR. BROWN, who is chairman of the section on humidity of Committee D-13, American Society for Testing Materials, wrote this article in reply to the following inquiry:

"According to a definition in the book 'A.S.T.M. Standards on Textile Materials,' relative humidity indicates a definite condition of the atmosphere, but tables which are used in connection with hygrometers and psychrometers differ for corresponding readings. Table I is an example of readings and figures from standard tables for an actual atmospheric condition at a given time. Evidently moving air in connection with a hygrometer produces the same thermometer readings as those obtained with a sling psychrometer. Will you let me know if tables should not be made that will show relative humidity equally well whether a hygrometer or a psychrometer is used?"

AS the inquirer says in his opening sentence, relative humidity is a condition of the atmosphere which is not altered by the correctness of instruments used to measure it. Committee D-13 of the American Society for Testing Materials has adopted the sling psychrometer as the standard instrument for measuring humidity. This committee also permits the use of certain other types of humidity-measuring instruments, except in the case of dispute, and provided always that indications are equivalent to those of the sling psychrometer within prescribed limits of accuracy. Permission is not given to use the stationary wet- and dry-bulb hygrometer without a definite rate of air movement over the wet-bulb thermometer.

In view of the fact that dry- and wet-bulb readings *B3* and *B4* (letters refer to case and numerals to columns in Table I) agree with readings *C3* and *C4*, it will be assumed that the instruments were in equally good condition and correctly read when operated as psychrometers.

The high humidity value *A7* and the low values, *B6* and *C6* demonstrate the importance of the requirement that a proper humidity table or chart always be used to interpret readings of the wet- and dry-bulb hygrometer or psychrometer. In fact, the correctness of the chart is of no less importance than the reliability of the instrument itself.

Indications of unfanned, stationary hygrometers cannot be relied upon, even when a special table is used to interpret the readings. The inquirer asks if tables should not be made that will show relative humidity with equal accuracy whether a hygrometer or a psychrometer is used. Unfortunately, it is impossible to do this for the following reasons:

1. In the practical use of the instrument there is no such thing as absolutely still air. Even if the room were otherwise without air currents, a slight air movement would be induced by the instrument itself. In addition, moving machine parts, belts, etc., and the temperature differential—such as results from local heat sources or cold objects—usually cause an air movement of from 10 to 50 ft. per min. in most rooms. The extent of this movement varies considerably.

2. Regardless of temperature and humidity conditions of room air, indications of the wet- and dry-bulb hygrometer vary, depending upon the rate of air movement. At low air velocities, the wet-bulb depression is more sensitive to variations in air movement than at high velocities. Above 10 or 15 ft. per sec. little change takes place; below 5 or 10 ft. per sec. depression is very sensitive to air movement.

3. There is considerable heat interchange between the dry- and wet-bulb thermometer bulbs, between them and the frame on which the instrument is mounted, etc. Such influence is more pronounced in relatively stagnant air. Insulating material could be used to reduce this effect, or the dry- and wet-bulb thermometers could be mounted farther apart; but in the absence of air movement such provisions would introduce another cause for error; namely presentation of different portions of room air to the two thermometers. The instrument as ordinarily built is intended as a compromise between several factors. It is relatively inexpensive and is convenient to use; but, unfortunately, under usual conditions of exposure in still air, it is only approximately accurate in its indications.

4. In view of the large thermometer bulbs and the lack of rapid air movement, the stationary hygrometer is less sensitive to sudden fluctuations in atmsopheric conditions than are psychrometers subjected to rapid air movement. For this reason, random readings made when room temperature or humidity is fluctuating rapidly (as when heating or humidifying systems are operated intermittently) may differ more than usual from simultaneous readings of the psychrometer. Usually stagnant air or falling humidity would cause the stationary hygrometer to read high. Too rapid an air movement or a rapidly rising humidity would cause the instrument to read low.

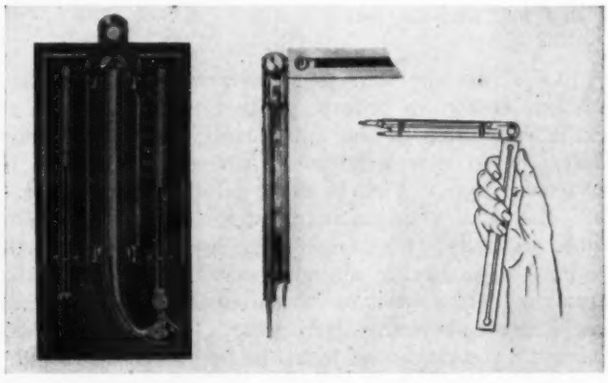


Fig. 1. Stationary wet- and dry-bulb hygrometer.

Fig. 2. Folding sling psychrometer.

Table I. Relative humidity readings

Case	Instrument (1)	Air Movement (2)	Dry Bulb (3)	Wet Bulb (4)	Depression (5)	R.H. by Hygrom. Table (6)	R.H. by Psychrom. Table (7)
A	Stationary Hygrometer	None	75	62	13	39*	47†
B	Stationary Hygrometer	By fan	79	57	22	10**	22††
C	Stationary Hygrometer	By swing	79	57	22	10**	22††

Notes by Mr. Brown
* This value too high; proving unreliability of stationary hygrometer. See discussion
† Too high; wrong table used.
** Too low; wrong table used.
†† Probably correct.

The special hygrometric humidity table which the inquirer used in determining the value of 39% in Case A, Column 6, was designed and published by Parks-Cramer

Co. for use with the well-known type of hygrometer which has dry- and wet-bulb thermometers mounted about 3 in. apart on a wooden frame.

The dry- and wet-bulb readings in *A3* and *A4*, show a quite unusual drawing together of the dry- and wet-bulb thermometer readings, which suggests to the writer either that the air surrounding the instrument was unusually still or was drying out very rapidly, or that the instrument used was one of the older designs having mercury bulbs close together or having a metal framework with thermometers more or less inclosed as a protective feature. In any of these cases, a low wet-bulb depression might be expected. Using the more common type of instrument exposed openly to room air in the ordinary office or mill during working hours, one would expect a wet-bulb depression of about 18 points, which, at a dry-bulb reading of 77° or 78°, would represent a relative humidity of 22% by the hygrometric humidity table and would correspond to the psychrometric.

When the stationary wet- and dry-bulb hygrometer is used with normal precautions, in an atmosphere where neither temperature nor humidity is changing rapidly, its readings interpreted by the special hygrometric humidity table seldom vary by more than 2 to 8 points from a simultaneous psychrometric observation and interpretation. The error of 17% represented by the 39% value in the inquirer's tabulation is so considerable that I would look for some of the circumstances just listed.

D-13 BEGINS NEW YEAR

H. J. Ball, chairman, D-13.

G. E. Hopkins, 1st vice-chairman.

R. H. Brown, 2nd vice-chairman.

W. H. Whitcomb, secretary, D-13.

ABOVE are the four pilots who will, we have excellent reason to believe, guide Committee D-13, the textile committee of the American Society for Testing Materials, to new heights of achievement during the next two years. Two of these pilots, Professor H. J. Ball, chairman, shown at extreme left, and W. H. Whitcomb, secretary, at extreme right, are old hands at this guiding, each having already served three consecutive terms in their respective capacities and Mr. Whitcomb having been previously chairman. The new first vice-chairman, shown second from the left, is G. E. Hopkins, of Bigelow-Sanford Carpet Co., who is largely responsible for the astonishingly active part which the wool industry now plays in D-13 activities; and the third gentleman, who is second vice-chairman, is R. H. Brown, of Parks-Cramer Co. Mr. Brown also heads the efficient section on humidity.

During the annual meeting of the Society in Atlantic City last month, Chairman Ball reported the following achievements for the previous twelve months:

(1) Proposed Tentative Standards—Methods of Testing and Tolerances for Certain Carded Cotton Gray Goods; Method of Test for Resistance to Yarn Slippage in Silk, Rayon, and Silk-rayon Woven Broad Goods; Method of Test for Fastness of Dyed or Printed Cotton Fabrics to Laundering or Domestic Washing; (2) Proposed New Standard—Method of Test for Shrinkage in Laundering of Woven Cotton Cloth; (3) Proposed Revisions of Tentative Standards—Definitions and Terms Relating to Textile Materials (D 123-35T); Methods of Testing and Tolerances for Silk and Cotton Tapes (D 259-31T); Methods of Test for Small Amounts of Copper and Manganese in Textiles (D 377-33T); Methods of Testing Pile Floor Covering (D 418-35T); (4) Proposed Revisions of Standards—General Methods of Testing Woven Textile Fabrics (D 39-34), immediate adoption; Methods of Testing and Tolerances for Cotton Yarns, Single and Plied (D 180-33), immediate adoption; Methods of Testing and Tolerances for Cotton Sewing Threads (D 204-33), immediate adoption; Specifications and Methods of Test for Asbestos Tape for Electrical Purposes (D 315-33), immediate adoption; Specifications for 0.007-in. Cotton Tape for Electrical Purposes (D 335-34), immediate adoption; Methods of Testing and Tolerances for Certain Light and Medium Cotton Fabrics (D 274-34), immediate adoption; (5) Adoption of Tentative Standards as Standard—Method of Estimating Hard Scoured Wool in Wool in the Grease (D 232-35T); Methods of Testing and Tolerances for Tubular Sleeving and Braids (D 354-35T); Methods of Testing and Tolerances for Woolen Yarns (D 403-35T); Methods of Testing and Tolerances for Worsted Yarns (D 404-35T); Specifications for Textile Testing Machines (D 76-35T), as revised; Specifications and Methods of Test for Asbestos Yarns (D 299-34T), as revised; Specifications and Methods of Test for Asbestos Roving for Electrical Purposes (D 375-34T), as revised; (6) Adoption as Standard of Tentative Revision of Standard—Standard Methods of Testing and Tolerances for Hose Ducks and Belt Ducks (D 181-34); (7) Withdrawal of Standards—Methods of Testing and Tolerances for Electrical Cotton Yarns, Single and Plied (D 203-33); Specifications and Methods of Test for Asbestos Yarns (D 299-33); Specifications for Textile Testing Machines (D 76-33).

SALESMEN'S TELEGRAMS

Use of word-saving code reduces cost of messages

By Milton M. Abrams
Ajax Hosiery Mills

ANY good-sized concern having a proportionately large selling staff is thoroughly familiar with the enormous telegraph bills which seem to come up from nowhere. Salesmen wanting to know about deliveries, submitting price offers, forwarding rush orders; all use the telegraph offices—but always "Collect." They faithfully observe the slogan of the Western Union: "Wire—don't write." Customers also like to send wires collect. In fact, some are thrifty enough to send cancellations by wire collect.

When people send cables from abroad, they use a code which greatly reduces the cost of the message, because it reduces the number of words. One code word may stand for a series of words, a phrase, or an entire sentence. Why not use codes for telegrams?

Below is a sample of how a word-saving code for a hosiery mill can also be a money-saving code. Similar codes can easily be worked out for other types of mills. It should be remembered in this connection that the international regulations on telegraph and cable codes do not permit alphabetical words in excess of five letters to go as a single word. The ruling is that garbled words from one to five letters are charged as one word; from five to ten letters, as two words; from ten to fifteen letters, as three words. That is, each unit of five letters in successive order is considered as one individual word. Therefore use of correct English words to designate a series of numbers and words save a considerable amount. It will be noted that in our code, we are using one English word for phrases, as well as one word for numbers.

Telegraph Code for Hosiery Mills

Styles

700	Alabama
701	Arizona
702	Arkansas
703	California
704	Colorado
705	Connecticut
706	Delaware
707	Columbia
708	Florida
709	Georgia
710	Idaho
711	Illinois
712	Indiana
713	Iowa
714	Kansas
715	Kentucky
716	Louisiana
717	Maine
718	Maryland
719	Michigan
720	Minnesota
721	Mississippi
722	Missouri
723	Montana
724	Nebraska
725	New Jersey
726	New Mexico
727	New York
728	Dakota
729	Ohio
730	Oklahoma
731	Oregon
732	Pennsylvania
733	Rhode Island
734	Tennessee
735	Texas
736	Utah
737	Vermont
738	Washington
739	West Virginia
740	Wisconsin
741	Wyoming
742	Alaska
743	Cuba
744	Ontario
745	Quebec
746	Yukon
747	Alberta
748	Manitoba
749	Canada
750	Bahama
751	Deuville
752	Paris
753	Andover
754	Argentina
755	Athens
756	Austria
757	Belgium
758	Berlin
759	Bombay
760	Brazil
761	Brussels
762	Budapest
763	Calcutta
764	Chile
765	China
766	Denmark
767	Dublin
768	England
769	France
770	Germany
771	Greece
772	Holland
773	Hungary
774	India
775	Ireland
776	Italy
777	Japan
778	Liverpool
779	London
780	Madrid
781	Melbourne
782	Mexico
783	Montreal
784	Norway
785	Panama
786	Pekin
787	Peru
788	Poland
789	Reno
790	Rome
791	Russia
792	Scotland
793	Siam
794	Siberia
795	Spain
796	Sweden
797	Sydney
798	Tokio
799	Turkey
800	Wabash
801	Waco
802	Wadsworth
803	Wagner
804	Wales
805	Wallace
806	Wallingford
807	Walton
808	Ward
809	Warren
810	Warsaw
811	Washburn
812	Waterbury
813	Waterloo
814	Watertown
815	Watkins
816	Waverly
817	Wayne
818	Webster
819	Wellington
820	Wells
821	Westfield
822	Wharton
823	Wheeling
824	Wick
825	Williams
826	Willmar

Dozens

1	Baby
2	Bachelor
3	Back
4	Bad
5	Badge
6	Baggage
7	Bail
8	Bait
9	Bake
10	Balance
11	Balcony
12	Bald
13	Bail
14	Bale
15	Ballad
16	Balloon
17	Balm
18	Bend
19	Bandana
20	Bandit
21	Banjo
22	Bank
23	Banner
24	Bar
25	Barber
26	Bargain
27	Bark
28	Barley
29	Barn
30	Baron
31	Barrel
32	Barter
33	Base
34	Bashful
35	Basin
36	Basket
37	Bat
38	Bathe
39	Baton
40	Battle
41	Bay
42	Bead
43	Bear
44	Beast
45	Beauty
46	Beaver
47	Bed
48	Beg
49	Belfrey
50	Bell
60	Belong
70	Belt
80	Bench
90	Bend
100	Benefit
120	Benzene
150	Berate
200	Berg
240	Berry
250	Beside
300	Best
350	Betray
400	Better
450	Bevy
500	Beyond
600	Bike
700	Bill
800	Bin
900	Birch
1000	Bison

Prices

$3.00	Dab
3.25	Daffodil
3.50	Dagger
3.75	Daily
4.00	Dainty
4.25	Dairy
4.50	Dally
4.75	Damage
5.00	Damask
5.25	Damp
5.50	Damsel
5.75	Dandy
6.00	Danger
6.25	Deadly
6.50	Dear
6.75	Death
7.00	Decay
7.25	Deceive
7.50	Decide
7.75	Decipher
8.00	Declare
8.25	Decrease
8.50	Dedicate
8.75	Deem
9.00	Deface
9.25	Default
9.50	Defect
9.75	Defend
10.00	Defer
10.25	Defile
10.50	Defray
11.00	Deliberate
11.25	Delicate
11.50	Delight
11.75	Demonstrate
12.00	Depart
12.25	Deprive
12.50	Describe
12.75	Desecrate
13.00	Deserve
13.25	Design
13.50	Desert
13.75	Desire
14.00	Desist
14.25	Desolate
14.50	Desperate

Sizes

8½	Habit
9	Hail
9½	Hammer
10	Hand
10½	Happy

Terms

Net 10 days	Labor
Net 20 days	Lace
Net 30 days	Lady
Net 60 days	Lamb
EOM	Lance
Net 10 EOM	Land
10 days	Lank
20 days	Lap
30 days	Lard
1 per cent	Lash
2 per cent	Latch
3 per cent	Late
4 per cent	Latter
5 per cent	Law
6 per cent	Lax
7 per cent	Lazy
8 per cent	Lead
9 per cent	Learn
10 per cent	Leather

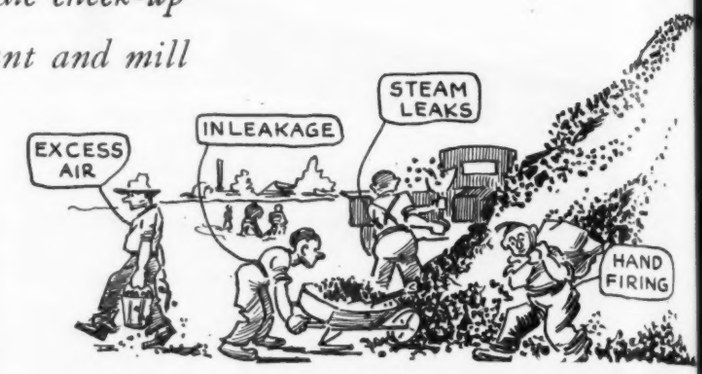
Miscellaneous

Advise when you shipped same	Mad
Advise by return wire	Machine
Are being sent	Madam
Call number	Magic
Cannot be shipped before	Magnet
Confirmation following	Magnify
Confirmation number	Malden
Date bill as	Main
How you shipped	Majesty
Is being sent	Major
Must be shipped at once	Make
Must be shipped by	Malice
Must know immediately	Mammy
Must be shipped not later than	Malt
Order number	Man
Ship at once	Manage
Ship via Acme	Maniac
Ship via express	Manly
Ship via freight	Mantle
Soon as possible	Map
Was shipped	Margin
When did you ship	Mark
Will be sent	Maroon
Will be shipped	Marry

COAL-PILE ROBBERS

can be caught by periodic check-up

for waste in power plant and mill



By Charles L. Hubbard

A PERIODIC and systematic check-up in the power plant and mill almost invariably will reveal some points at which there are unnecessary wastes which can be eliminated or reduced with consequent saving in fuel costs. The following suggestions will serve as a guide in carrying out a survey of this kind. Frequently the simple tests below will be sufficiently accurate for all practical purposes. In other cases, they will indicate the necessity for more thorough investigation.

As fuel is the largest single expense in the generation of power, comprising from 40 to 60% of the total operating cost, any saving here has an important bearing on the power costs of the plant. Starting in the boiler room, the grade or kind of fuel used should be checked to see if it is well adapted to the furnace equipment and method of firing employed. If hand firing is practiced, the coal used should be low in ash and free from clinker. With natural draft, the strength of the draft is an important factor in the selection of the fuel. In event the plant is equipped with mechanical stokers, much reliable assistance can be obtained from the makers concerning both operation and the best kind of coal to use. Next, the calorific value of the proposed fuel should be obtained, either from the dealer or by laboratory tests, and records kept of the pounds of steam obtained from each pound of coal over a reasonable period.

In a well-designed and adjusted plant, the combined boiler and furnace efficiency should not be allowed to fall below 70%. If records show that it is less than 70%, the efficiency should be improved, either by changing methods of firing, by adjusting automatic equipment, by changing the furnace construction, by stopping possible leaks in boiler setting, or by correcting other faults which may become apparent upon investigation.

All plants should be provided with means for weighing the coal, metering the steam or feedwater, and testing the CO_2 content of the flue gases. With this information at hand, it is possible to check losses at frequent intervals and correct them. The CO_2 recorder is of especial assistance to the boiler-room attendants in adjusting the air supply to the furnaces for the most efficient combustion.

Furnace Equipment

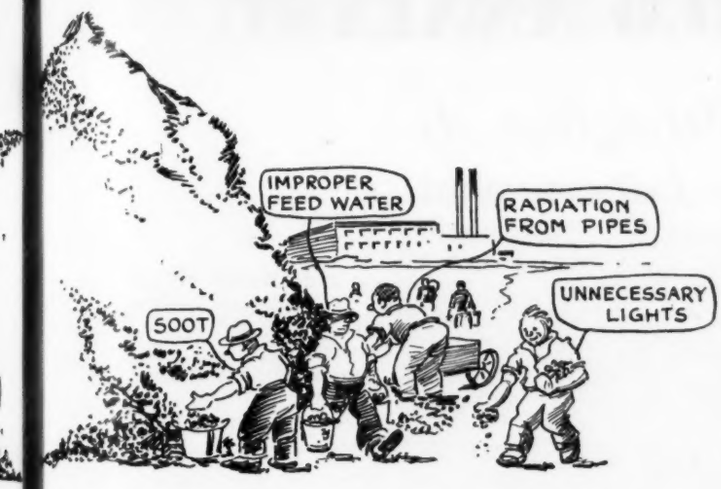
In older plants of small and medium size, the boiler is frequently set too near the grate to permit effective combustion of the gases. Increasing this distance to at least 36 in.—or better, to 48 in. when space will permit—will decidedly increase boiler efficiency in many cases. Another matter to be considered is the advisability of installing automatic stokers, if they are not already in use. Use of this equipment is becoming common in plants which were formerly thought too small for economical operation of stokers. With modern boilers, in good condition, output can be increased by this method at least 100% for peak loads and 50% for continuous service. Again, it should be possible under average conditions, with mechanical stokers to reduce the fuel consumption 10% for the same output as produced by hand firing. Another advantage of this type of equipment is the fact that a cheaper grade of coal can be used, which will produce an equal amount of heat at lower cost.

While considering the boiler room, it is advisable to give a little attention to the outside of the furnace, as well as the inside, by going over the setting with a candle flame in search of leaks. In older plants, it is not uncommon to find an inleakage of air amounting to 20 to 30% of that passing through the fire. This inleakage does not aid combustion and yet must be heated to the temperature of the flue gases, resulting in a direct waste of heat in proportion to the amount of air. Inleakage can be practically eliminated by carefully painting all cracks and giving the entire setting a couple of coats of cement wash or specially prepared paint.

Effect of Steam Leaks

Slight leakage of steam around valve stems, gaskets, trap valves, etc., in a plant of considerable size, will amount in a year to a rather astonishing sum expressed in pounds of coal. For example, suppose the aggregate of all the leaks in a plant is equivalent to what would flow through a short nozzle having an area of 0.3 sq.in. With high-pressure steam blowing into the atmosphere, this would amount to about 1,170 lb. per hour, or 1,170x8x 300=2,808,000 lb. for 300 working days of 8 hr. each. Assuming an evaporation of 10 lb. of steam per pound of coal, it would call for a fuel consumption of 140 tons per year to offset these small leaks. Even a small ½-in. open drip pipe from a dryer or other piece of equipment, under a low pressure of 2 or 3 lb. will produce a waste equal to approximately one-fourth of this amount.

While steam leaks are easily detected, the radiation from unprotected piping is not so noticeable and may be overlooked in some instances, particularly in low-pressure runs, in tunnels, and in other out-of-the-way places. Take the case of an uncovered 8-in. heating main 100 ft. long carrying steam at 10-lb. pressure continuously for a heating season of 6 mos. The radiation from the pipe during this period, if surrounded with still air at 70° F. will amount in round numbers to 400,000,000 B.t.u., sufficient to condense 420,000 lb. of steam. To generate this amount would require the burning of approximately 20 tons of coal. By insulating this pipe with a suitable cover-



ing, one could reduce the fuel losses to about 1.6 tons. This, of course, is an extreme case, and would not likely be found in a modern plant. However, the aggregate of uncovered short lengths of pipe, valves, fittings, tanks, heaters, etc., might well approach it. The time required for insulation to pay for itself in fuel saved varies with cost of labor and material, size of pipe, steam pressure, and cost of coal; but the average will not run much over 6 mos. and, in some cases, will be considerably less.

Effect of Soot

While covering the piping increases plant efficiency, an insulation of soot and ash upon the tubes and heating surfaces inside the boiler has the opposite effect. Soot has about five times the insulating effect of asbestos of the same thickness, and therefore, seriously interferes with the transfer of heat from the hot gases to the water. Hence, its prompt removal is essential to good operating economy.

In estimating the actual saving to be realized by the installation of soot-blowing equipment, both the cost of steam and the overhead charges must be taken into consideration. While special cases may run somewhat higher, the results obtained in the averaged-sized plant show a fuel saving ranging from 4 to 10%, depending upon local conditions. Although the hand lance may be used to an advantage in plants of small size, a permanent installation of mechanical soot blowers is to be recommended.

Blowing Down Boilers

Another factor tending to reduce boiler efficiency, not to mention other harmful results, is incrustation. While the insulating effect of incrustation varies somewhat, depending upon its composition, thickness, etc., it has been said that a coating of average scale, $\frac{1}{32}$-in. thick, will cause the waste of 140 lb. of coal out of every ton fired. Methods for removing the scale-forming impurities from boiler water, unless the processing takes place before the water is fed to the boiler, involve frequent blowing down, with a resulting loss of heat. Ordinarily, this is a matter of guesswork, and a much larger quantity of water may be drawn off than is necessary to maintain the required degree of concentration. The procedure may be placed on a scientific basis by having a sample of the raw feed water analyzed and a safe degree of concentration decided upon by a competent chemist. Also, the density of this concentration should be learned from the chemist, so that the boiler water may be checked from time to time by means of a hydrometer. With these data at hand, it is a simple matter to determine the amount of water to be blown off daily. Textile mills, particularly those using large amounts of process steam, will do well to investigate the fuel-saving possibilities of continuous blowoff equipment.

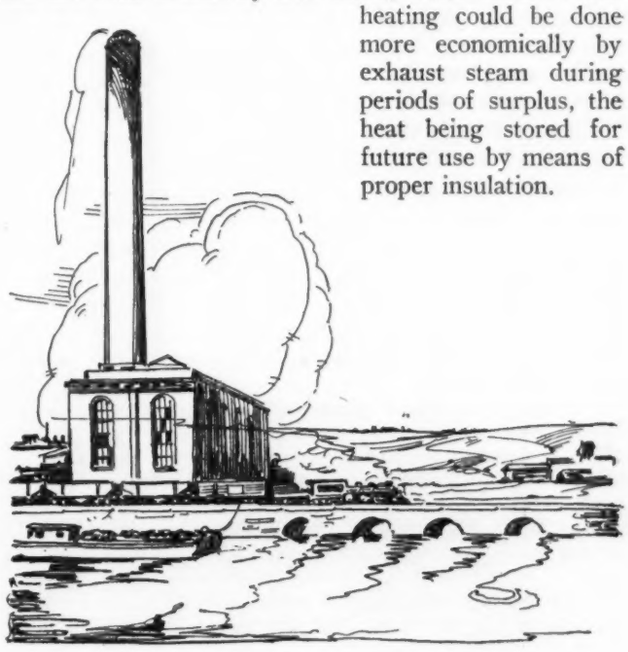
Belting and Shafting

It is not commonly realized that the power lost in poorly aligned shafting, hot bearings, slipping belts, and other factors which add to the friction loss in transmission, represents from 8 to 12 times its equivalent heat value in the coal pile. That is, it requires the burning of approximately 10 lb. of coal in the boiler furnace to produce work in the machines equivalent to the energy contained in 1 lb. of coal. This shows the importance of keeping all shafting in proper alignment, bearings adjusted and oiled, and belts in good condition. In addition to these items, power can be saved by shutting down machines not in use, instead of allowing them to idle.

Sometimes, a considerable number of lights are burned throughout the day, which might be dispensed with if the windows were kept clean. These same lights might be eliminated by interior painting with a light color. It is not unusual for window cleaning and painting to permit saving $\frac{1}{2}$ hr. of electricity each day during the heavy lighting season.

Utilization of exhaust steam is too well appreciated to require more than passing mention here. Such steam should first be used for purposes which are continuous throughout the year, such as feed water heating, process work, etc. The remainder can be discharged into the general heating system for warming the buildings. If live steam is used in any considerable amount for heating purposes, there are a number of ways in which coal may be wasted. For example, there are often cracks around window and door casings which should be caulked and painted.

Wasteful methods of ventilation, such as blowers on machines which are carrying out more air than is necessary for the removal of waste material, should be corrected. Hot liquids from which heat could be salvaged are discharged into the sewer. Tanks of water, dye, and chemicals are often heated by live steam, when much of this heating could be done more economically by exhaust steam during periods of surplus, the heat being stored for future use by means of proper insulation.



TEXTILE WORLD ANALYST

Profit Chances Strengthen As Textiles Continue Improvement

First Half-Year 11% Above 1935 in Activity: TEXTILE WORLD's index of textile mill activity indicates a rate during the first six months of 1936 approximately 11% above that for the corresponding period of 1935. Cotton and rayon accounted for the increase, while use of wool and silk declined as against last year. . . . More important than this average increased rate of production have been the large volume of sales and the firmness in prices in certain important parts of the market.

THE buoyancy which has characterized most branches of the textile industry since May continued through July. At the end of the month, the outlook was for continued strength.

The most encouraging aspect has been the improved chance for a profit, particularly in cotton goods. As will be noted in Table I, manufacturing margins on carded cotton fabrics in July averaged higher than for any month since January, when the market started to go sour. The recovery in July margins, over June, was spectacular. Table II shows an improvement in carded yarn margins also, but not to the extent registered in cloths; however the former had not degenerated as much as the latter had.

A sharp rise in all the cotton indices averaging four points featured TEXTILE WORLD's price index numbers for July. Despite slack demand, raw wool prices flattened out and the indices were steady. Raw silk gained two points representing a 10% rise.

Judging from information in the trade, the relative position of stocks on hand and unfilled orders in cotton goods was probably stronger in July than at any other normal period, the sole exception being probably the speculative boom just prior to the date when NRA and AAA became effective in 1933.

Our New England editor reports that mills there have been doing better the last month than at any time probably since 1923. Spindle activity is high and mills are making money. No doubt some of the buying has been due to anticipation of higher prices and the pace may not keep at this level for long, but there is a cheerful air about things, he adds.

Highlights of the various branches of the industry follow:

Cotton: The cotton shortage which made front page news last month is still the most important topic of conversation. Mill activity continues at a high rate. In the combed yarn field prices have improved and shipments during last month were heavy; it is here of course that the serious cotton shortage is apparent. Carded yarn mills are selling a good volume but still complain about profit margins.

Wool: With the advent of a between-seasons lull in men's wear in July came a moderately active women's wear movement. Men's wear tropicals have been opened for 1937 in some quarters. Regular lines for spring are opening at reductions not exceeding 5% from fall 1936 prices and possibly 7½% above those set a year ago for spring 1936.

Rayon: The yarn market continues very strong with chief viscose producers booked to capacity through September. In rayon fabrics, July volume is reported well above seasonal levels and good tone prevails generally. Upward trend of ½ to ¾c. on staple rayon fabrics started, and prices are generally firmer.

Silk: Due to lack of spot silk here, prices gained from 8 to 13c. in July despite slack buying. Uptown silk fabric market shared to a lesser degree the new strength in rayon fabrics.

Knit Goods: Price break in women's full-fashioned, both branded and unbranded, lends uncertainty to a picture which otherwise should be very encouraging. . . . Recent advances on heavyweight underwear were from 12½c. on shirts and drawers to 25c. on union suits. The industry itself generally is very strong, with prospects of further advances in price. . . . Price tone on all outerwear lines is stronger than usual, due partly to firm raw material position and partly to active promotional campaigns.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933..	21.4	August, 1935...	17.1
October, 1933.	19.1	September, 1935	17.9
January, 1934	18.4	October, 1935..	17.7
April, 1934...	17.6	November, 1935.	16.4
July, 1934....	15.5	December, 1935.	16.2
August, 1934..	16.6	January, 1936..	17.2
September, 1934	18.6	February, 1936.	16.5
October, 1934..	17.4	March, 1936...	15.5
November, 1934.	15.8	April, 1936....	14.3
December, 1934.	16.2	May, 1936.....	14.3
January, 1935..	16.2	June, 1936.....	15.3
February, 1935.	16.0	July, 1936.....	16.9
March, 1935...	15.9	July 8..	16.2
April, 1935....	16.1	July 15..	17.1
May, 1935.....	16.0	July 22..	17.1
June, 1935.....	16.5	July 27..	17.0
July, 1935....	15.2		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933...	23.5	August 1935...	15.3
October, 1933..	20.0	September, 1935	15.4
January, 1934..	18.3	October, 1935..	15.8
April, 1934....	15.9	November, 1935.	16.3
July, 1934.....	14.7	December, 1935.	16.3
August, 1934...	15.3	January, 1936..	18.4
September, 1934	15.6	February, 1936.	17.5
October, 1934..	14.6	March, 1936...	16.3
November, 1934.	13.5	April, 1936....	15.6
December, 1934.	13.5	May, 1936.....	14.8
January, 1935..	13.5	June, 1936.....	14.6
February, 1935.	13.9	July, 1936.....	15.0
March, 1935...	14.4	July 8..	14.3
April, 1935....	14.1	July 15..	14.9
May, 1935.....	13.8	July 22..	15.2
June, 1935.....	14.5	July 27..	15.6
July, 1935.....	14.3		

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Those who wish to continue with indices based on July 1, 1914, for chart purposes or otherwise, can secure conversion factors to change the new figures to the old by writing TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass. Figures on cotton manufacturers, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
1923-25 average.	100	100	100	100	100	100	100	100	100
1930 average...	50	61	61	72	58	61	72	90	109
1931 average...	32	58	46	59	46	49	59	71	32
1932 average...	24	37	37	60	36	40	52	57	21
1933 average...	39	56	55	50	53	59	62	80	21
1934 average...	61	67	70	62	63	70	75	91	17
1935 average...	60	68	67	69	56	58	70	88	22
July 1935.....	61	68	65	69	56	59	70	89	20
Aug. 1935.....	58	68	66	69	56	59	70	89	23
Sept. 1935.....	55	66	68	69	58	60	70	89	25
Oct. 1935.....	57	68	68	69	60	61	73	92	27
Nov. 1935.....	60	70	69	72	62	65	75	92	27
Dec. 1935.....	60	71	69	72	64	66	76	92	26
Jan. 1936.....	48	67	63	68	67	73	75	93	26
Feb. 1936.....	42	62	58	67	72	81	77	93	24
Mar. 1936.....	42	61	57	66	73	81	77	93	23
Apr. 1936.....	43	60	55	64	68	75	76	90	22
May 1936.....	43	57	54	64	67	75	76	90	21
June 1936.....	44	58	57	65	67	75	76	90	20
July, 1936.....	48	61	61	70	69	75	75	90	22

I GET THE EFFECT I WANT

By painting it on design paper, selecting color patterns, and building weave to fit

By T. R. Hart

Associate Professor, Weaving and Designing, N. C. State College

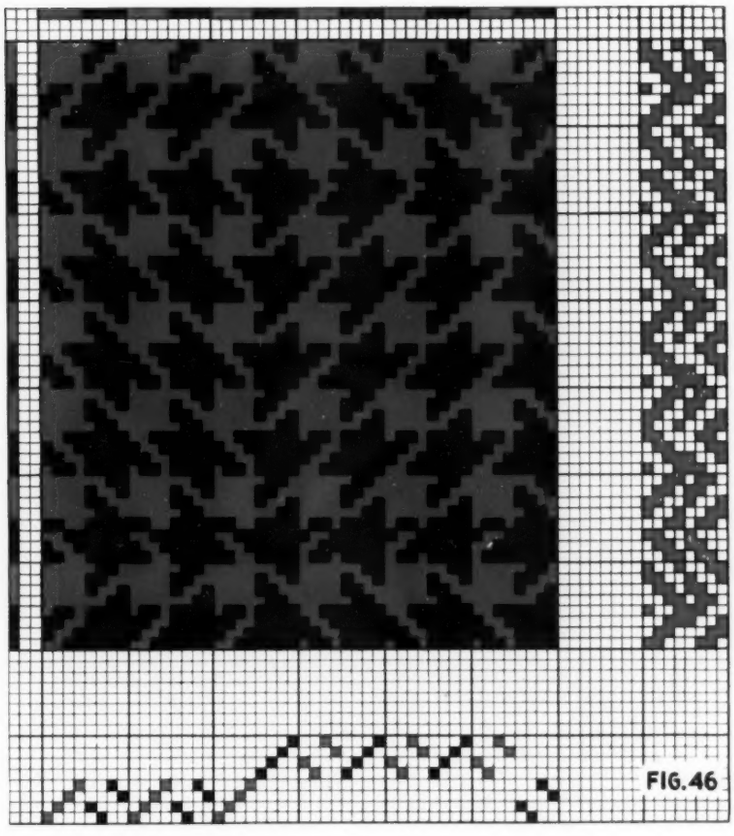


Fig. 46 shows the color effect for an interesting suiting pattern made from the drawing-in draft just below it and the chain plan beside it. This pattern results from various combinations of right- and left-hand 2/2 twills, and forms a kind of diamond overcheck on the face. If a one-and-one coloring were applied, a series of step effects would be obtained.

♦ *In a number of past articles in* TEXTILE WORLD, *Professor Hart has shown the variety of effects which can be obtained by applying different warp and filling color patterns to various weaves. Merely trying out combinations and seeing what happens is a fascinating sort of game, and in fact much designing of color effects is accomplished just that way, or on a trial-and-error basis. Nevertheless, a designer who is in a hurry or who has some definite effect in mind which he desires to produce is faced with the problem of selecting a weave and color layout which will give him exactly what he wants. Therefore, the author devotes the first part of the following article to this seldom-discussed but very important phase of color-effect designing.*

IN former issues of TEXTILE WORLD I have shown a variety of effects that could be produced by various combinations of weaves and colors, some of which are used quite frequently in producing commercial fabrics. It might be said that those articles have demonstrated that the most distinctive effects are produced by applying specific colorings to particular weaves; for, by doing so, I have shown how diamonds, stars, triangles, and other effects could be made.

It is well enough to know the weaves which produce those effects, and also others of similar character, but every designer does not have time to make one color effect after another in order to ascertain what weave will give him the result he desires.

Suppose it is desired to reproduce the step effect shown at Fig. 1 in a fabric made with a four-and-four coloring in both warp and filling, and that the solid squares in this effect represent black, while the blank squares represent white. Now in this case black predominates on the first four ends and also on the first four picks, so the coloring should be arranged four black, four white, in both warp and filling, as shown at Fig. 2. In this figure the horizontal line above the space marked off for the design indicates the coloring of the warp, while the vertical line at the left of this space indicates the coloring of the filling.

After this is done, the designer can then proceed to

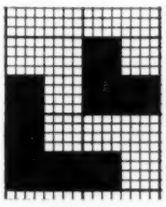


FIG. 1

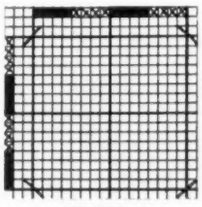


FIG. 2

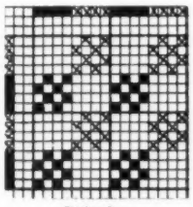


FIG. 3

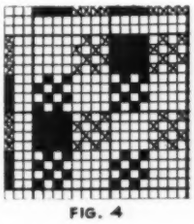


FIG. 4

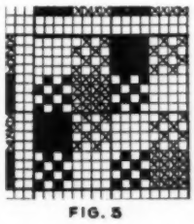
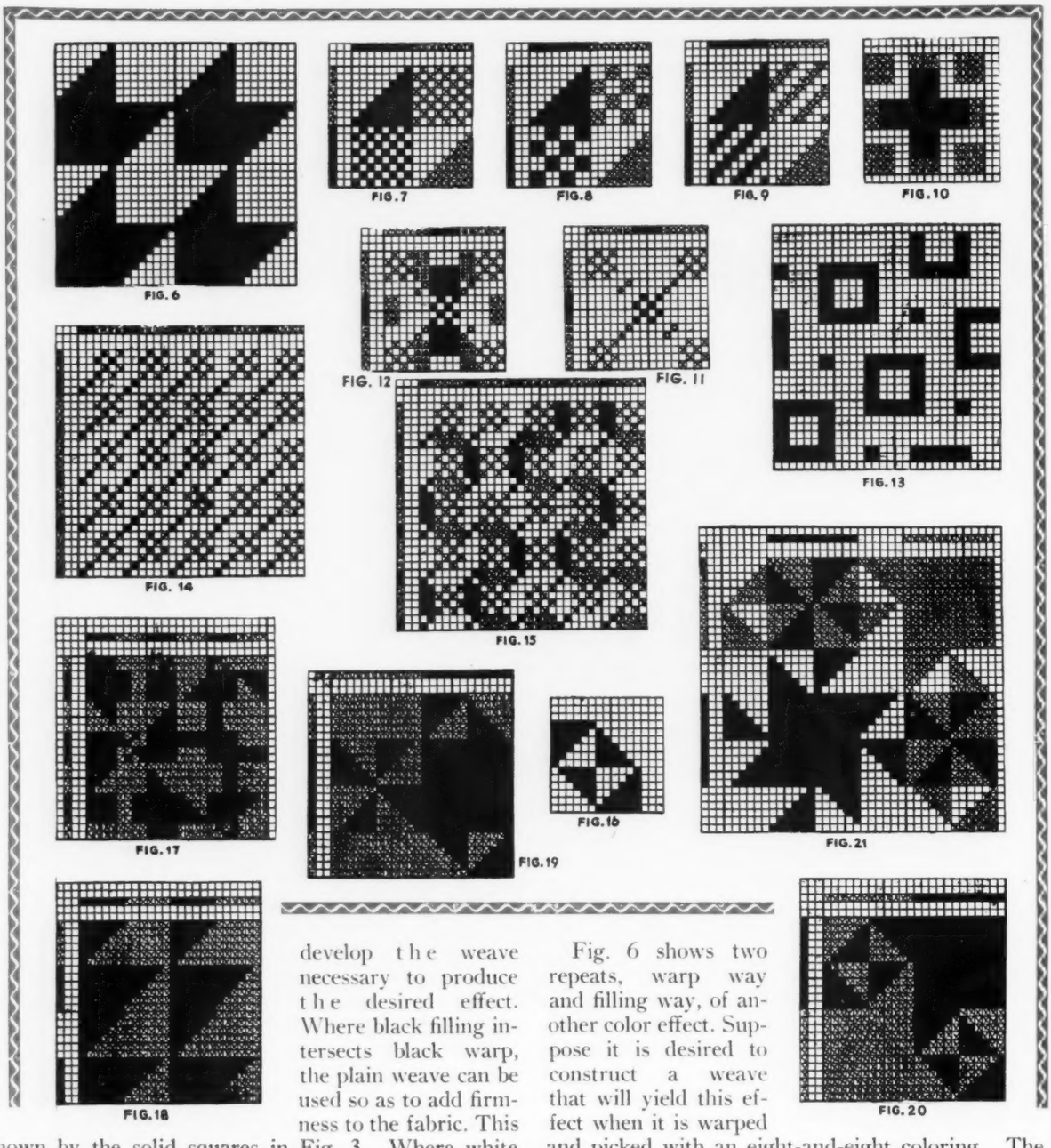


FIG. 5



develop the weave necessary to produce the desired effect. Where black filling intersects black warp, the plain weave can be used so as to add firmness to the fabric. This is shown by the solid squares in Fig. 3. Where white filling intersects white warp, the plain weave can also be used, as the section will remain white just as the intersection of the black filling with the black warp produced a black section or square. The intersection of the white filling with the white warp is shown by cross marks in Fig. 3. (The same system of marking is used throughout this article.)

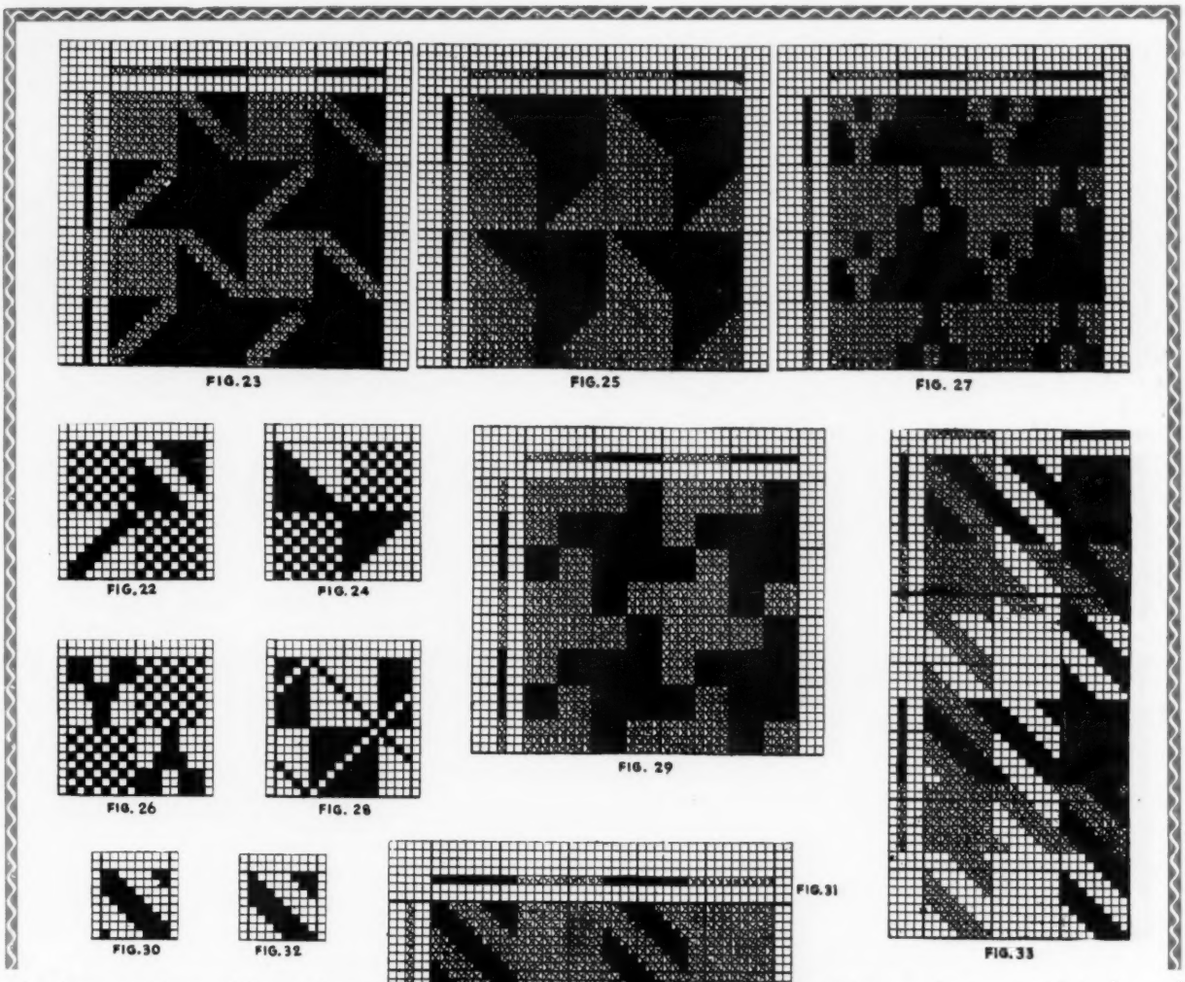
When the black ends are crossed by white filling, the ends must float over the filling if the section is to be black; and they must be lowered so that the filling will pass over them if the section is to be white. This is illustrated at Fig. 4. It will be seen that the first four black ends float over white filling on picks 5, 6, 7, and 8, and pass under the white filling on picks 13, 14, 15, and 16. In the second group of black ends the situation is exactly reversed, for the black ends pass under white filling on picks 5, 6, 7, and 8, and float over white filling on picks 13, 14, 15, and 16.

The complete design, which is shown at Fig. 5, is then obtained by raising the white ends where they float over black filling and lowering them where they pass under black filling.

Fig. 6 shows two repeats, warp way and filling way, of another color effect. Suppose it is desired to construct a weave that will yield this effect when it is warped and picked with an eight-and-eight coloring. The lower left-hand quarter of this color effect is black, which indicates that black filling intersects black warp. Consequently the coloring should be arranged eight black, eight white, in both warp and filling, as shown at Fig. 7. As in the previous illustration, the plain weave can be used where like colors intersect. Therefore, the lower left-hand quarter and the upper right-hand quarter can be filled in as a plain weave. Then the upper left-hand quarter of the design can be made by raising the black ends where they float over the white filling and lowering them where the white filling floats on the face. The design is completed by treating the white ends in the lower right-hand corner in the same manner.

So far nothing but a plain weave has been used where like colors intersect, but there are times when it is desirable to use more ends and picks per inch than is possible with a plain weave. In such cases weaves of looser construction can be used without altering the color effect. Thus, Fig. 8 shows the two-end basket weave used where like colors intersect, and Fig. 9 shows the 2/2 twill used in the same section.

It would be possible to substitute any eight-harness



weave in these sections without altering the color effect, but of course every time the weave is changed the texture of the fabric is changed. However, it should be borne in mind that for a given number of threads per square inch, where strength is desirable, the plain weave is the best that can be used.

A sixteen-harness straight draft would be required to weave any of the designs shown for this color effect. Therefore, by simply pegging a new dobby chain, a designer could easily try out all three and even others to determine which is best for his particular purpose.

Weaves for color effects involving more than two colors can also be developed by the methods described.

For instance, Fig. 10 shows an effect that requires three colors. Suppose that in this effect the cross marks represent white, the solid squares black, and the blank squares red. Now each corner of the color effect shows a 4 x 4 section that is solid white. Therefore, the first four ends and the last four ends can be taken as white, and the same can be done for the picks. Having ascertained this, the color of the ends and picks so far taken should be indicated on the space marked off for the design and the plain weave inserted where the white filling intersects white warp.

Now in the center of the color effect is a black cross, which indicates that the four center ends and the four center picks are black. Indicate the color of these ends and picks and then insert the plain weave where the black filling intersects the black warp. Red intervenes between the black and white, so the remaining ends and picks can be assumed to be red and the plain weave inserted where the red ends interweave with the red picks.

Thus, Fig. 11 shows the arrangement of the warp and filling and all the plain weave that has been inserted. The complete design, shown at Fig. 12, can then be made by raising the ends where they pass over another color of filling and lowering them where another color of filling passes over the ends. There are some rather long floats in Fig. 12; and, as a result, a rather loose fabric would be made. This effect has been used to illustrate how weaves can be developed for color effects containing three colors, but the writer does not commend long floats in either warp or filling.

The procedure described above can also be used to develop weaves for all-over effects. Fig. 13 shows a color effect that is complete on 30 ends and 30 picks. The solid squares in this effect represent black, and the blank squares represent white. It is rather easy to determine that the order of coloring is two black, four white, in both warp and filling. Fig. 14 shows the order in which the colors are inserted, and also the plain weave filled in where like color of filling interweaves with like color of warp. The solid squares represent black and the cross marks white. By raising the black ends where they pass over white filling and the white ends where they pass over the black filling, the complete design shown at Fig. 15 is obtained.

I now desire, in the remainder of this discussion, to supplement a previous article published in the October,

1935. TEXTILE WORLD and show some more fancy color effects which can be woven on dobby looms.

As a rule, when such effects are composed of two colors, either white is combined with another color or monochromatic contrasts are used. Monochromatic contrasts are composed of two different shades of the same color, such as light brown and dark brown, light blue and dark blue, etc. In all the color effects used in this article, the solid squares represent black, the cross marks white, and black squares a third rolor.

Fig. 16 shows a useful weave that forms a variety of effects when used with different systems of color. Some of these effects, with the method of warping and picking, are shown at Figs. 17, 18, 19, 20, and 21.

Fig. 22 is a type of honeycomb weave which yields a star check when warped and picked as illustrated at Fig. 23. It will be seen that a sixteen-harness straight draw is required to produce a fabric from this design. After setting up the loom to weave this fabric, it is possible to produce a variety of other patterns by simply pegging a new dobby chain every time a new pattern is desired. In the October, 1935, issue of this magazine I showed eight different weaves which yield attractive patterns when eight-and-eight colorings and a similar drawing-in draft are used. Figs. 24, 26, and 28 show three other weaves which can be used with the drawing-in draft mentioned, to produce the color effects shown at Figs. 25, 27, and 29, respectively. For instance, if Fig. 23 were being produced, the only change necessary to make any one of the other three effects would be to peg a new dobby chain and then turn the box chain so that the filling would intersect with the warp as indicated.

Figs. 31 and 33 show two more color effects which can be produced from eight-harness twills by warping and picking Figs. 30 and 32 in the manner indicated at the color effects. Fig. 33 was taken from a popular suiting pattern obtained in a local store. It was a woolen fabric and the colors used in it were black, white, and orange.

Fig. 35 shows the color effect of a neat imported fabric that was made from the twill basket weave shown at Fig. 34. If the two-and-two coloring used in a portion of Fig. 35 had been used throughout the pattern, the step effect shown at Fig. 36 would have been obtained. Fig. 37 shows how Fig. 34 would look if it were warped and picked with a four-and-four coloring. This color effect has some good features, but it is more or less ruined by some of the figures running into each other.

After some experimenting I found that by changing the base weave slightly, as indicated at Fig. 38, I could retain the effects shown at Fig. 37, and at the same time eliminate the objectionable features. Thus, Fig. 39 shows how Fig. 38 would look if it were woven with a four-and-four coloring, while Fig. 40 shows the color effect which would result if a two-and-two coloring were applied to the same weave. This shows clearly that color effects can very frequently be enhanced by making slight alterations in a given weave.

The small granite weave shown at Fig. 41 also yields some interesting color effects, as can be observed at Figs. 42, 43, and 44. This weave is often combined with small harness twills, baskets, etc., and some good patterns are produced. Fig. 45 shows one such combination, and the color effect is shown just above the design.

Fig. 46 is shown and described on page 83.

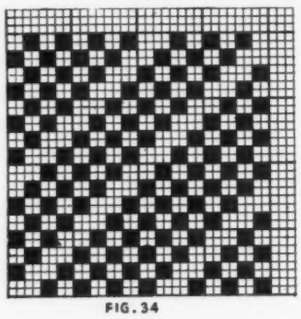


FIG. 34

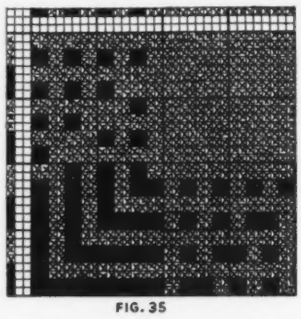


FIG. 35

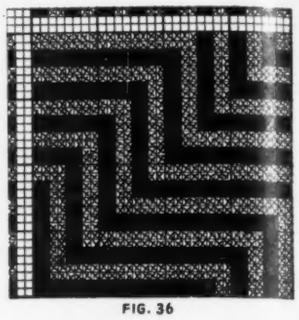


FIG. 36

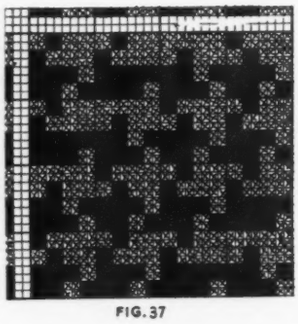


FIG. 37

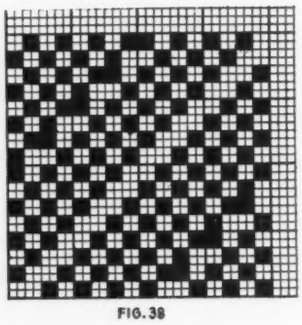


FIG. 38

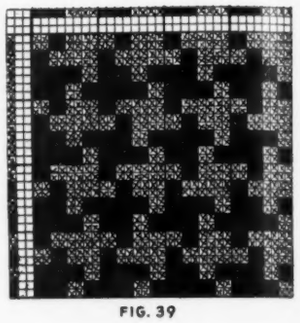


FIG. 39

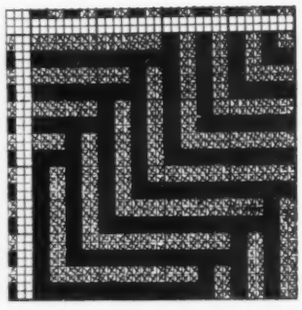


FIG. 40

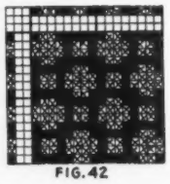


FIG. 42

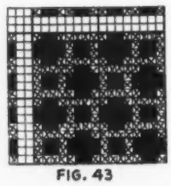


FIG. 43

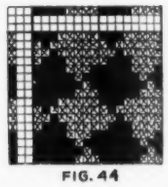


FIG. 44

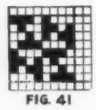


FIG. 41

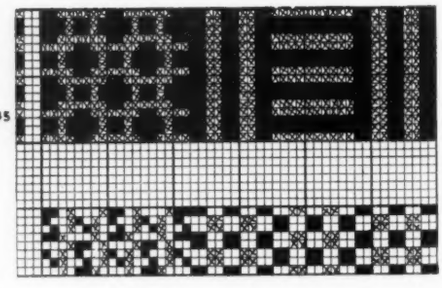


FIG. 45

ADVERTISING PAGES REMOVED

THE OVERSEERS' CORNER

Vacations With Pay

By John Williams

ANNOUNCEMENT by the Sherwin-Williams Co. that hereafter all hourly wage employees will receive vacations with pay on the same basis of service as clerical help brings to mind the many arguments I have had on the subject. The stock answer of a great many textile men—whether executives or overseers—is that it can't be done in the textile industry, because of seasonal variations. The answer I always make is that there are some mills already doing it and that others could also with some effort.

Most everyone will agree that the ideal situation would be to have the same number of employees throughout the year and the minimum of labor turnover. Vacations with pay would certainly tend towards less labor turnover in overseers and workers and the manufacturer would benefit in the long run. It would then be up to the management to smooth out employment as much as possible. With the modern weapons of budgeted inventory and production control the problem isn't as tough as it might appear, even for those mills where it is said that the customers determine the mill schedule entirely.

Frankly, we haven't as yet worked out the problem to our satisfaction in our mill here. We do, however, see that the overseers are treated the same way as the office help when it comes to vacations. It has always seemed foolish to me that so many mills seem to think that anyone who works out in the mill shouldn't get a vacation, even though he may be making more money than an office worker. Talk that an overseer can't be spared for a time is the bunk if the department is properly organized and run.

The subject interests me and I would like to hear from anyone who has had experience in giving overseers vacations and also in the extension of this privilege to the workers—vacations of course to be based on length of service.

Keeping Small Things Small

Editor, Overseers' Corner:

If Williams expects to keep small troubles small, he will need to wean himself from the personal-supervision-of-changes idea, unless that personal supervision is indirect. His overseers are entirely right in feeling that he is stepping on their toes, for he is guilty of a serious breach of management etiquette.

In order that things may move smoothly, it is of great importance that all orders reaching a worker or group of workers come through their immediate superior. Unless this is the case, that immediate superior will in most cases be left in ignorance of part of the orders, or of some phase of the orders. Further than this, if a worker does not like his immediate superior, that worker is always tempted to take matters over the head of the immediate superior, carrying them to a higher supervisor, and soon there will be a bad mess all around. Such a program as Williams has mapped out for himself threatens to open the door wide for such a mess. If there is to be trouble, what difference whether it comes through the actions of a dumb overseer or through those of an over-zealous superintendent?

As to changes, they should be made with great care. It is quite possible for the superintendent, when he has changes in mind, to outline them to the overseers, and personally accompany the overseer to the individual workers involved, thus insuring himself that the orders are given in the exact sense and spirit he wants them conveyed. In this manner, there are no toes stepped on, everyone knows the full details of the change that is being made, and the workman is in a peculiar sense obligated to air his objections then and there, if he has any. This is particularly true if the reasons for the change are fully discussed and presented to the workman at the time the order is given.

It is, however, well to remember that there is such a thing as psychological inertia, and that any worker tends to resist change, at least to some slight extent. This is as true of a superintendent or an overseer as it is of an individual worker, unless and until their personal cooperation and enthusiasm can be enlisted. It is a point in strategical management, therefore, when sweeping changes are contemplated, to make those changes as gradually as possible. While far-reaching changes may be charted in advance, gradual execution allows their gradual absorption. A proposal to change the duties of two operators will not cause one-fourth of the hubbub that will follow the shifting of five. In a relatively short space of time, the two operators in their new routine will be taken for granted by everybody, and all opposition incidental to their change will have disappeared. If the management is wise, it will not be known that changes for Hubbard, Lee, Grendale, Simmons and Root are scheduled in addition to the two men who have already been changed. Not until all is quiet on the industrial front will Hubbard and Lee be changed.

J. E. H.

Night vs. Day Overseer

Editor, Overseers' Corner:

I heartily agree with C. J. in the July number of the TEXTILE WORLD, when he comes out in defense of the night overseer. No two men can run the same job. If the day overseer is going to have charge both day and night, then why have a night overseer? I believe in giving the night man just the same authority as the day man. Let him hire and fire his own help. I do not believe in the day overseer even asking one of the night man's hands—not even a section man—how the work is running. If he wants to know how things are going, let him ask the overseer. I have run jobs both day and night. Get a man for the night run who can also handle a job on the day run. I, for one, cannot see where there is such a whale of a difference in running a room, or rooms, on the day run from that of the night run. Good gosh, the night man has enough troubles without having the day man always horning in on him!

A. B. B.

Training Loomfixers

Editor, Overseers' Corner:

Due to the automatic loom gaining so much headway over the non-automatic loom and also due to the third shift, there has resulted an acute shortage of good automatic-loom fixers in some sections, and this problem must be faced and solved in the most logical and sensible way. Some Southern mills have greatly helped the situation by having

CONTRIBUTIONS

Contributions to "The Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the narrative on page 91 or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.

afternoon classes for their loomfixers and other promising men who could be developed into loomfixers without a great deal of preliminary training.

In one particular case, a mill set up an automatic loom in an old store building in the village and held classes there from two o'clock in the afternoon until four o'clock, which gave an hour's instruction to the second shift and an hour's instruction to the first shift, and many of the third-shift loomfixers found it convenient to attend these classes. The company in question used one of its overseers who was thoroughly familiar with the automatic loom as the instructor, and it found that it was well paid for the time and effort. These classes were not restricted to loomfixers alone, but second hands and overseers also attended. Before the school was started, pamphlets on dobbies, loom fixing, box motions, etc., were ordered. Along with these pamphlets, copies of instructions for setting up the automatic loom, the timing of the loom, etc., as well as blueprints of the loom, were obtained and given to the students for their careful study and for their use during class hour in helping them follow more closely the discussions, instructions, and explanations of the instructor. The teacher, together with the superintendent, outlined a course of study which covered problems encountered from the installation of the loom through to the problems met in making different fabrics correctly. Certain parts of the class hour were given to free discussion by all and any questions could be asked, which made the hour more interesting and more constructive all the way around.

WILBUR MASON

More Smoke

Editor, Overseers' Corner:

I have known smokers to use as much as two packs of cigarettes a day, smoking only a small part of each cigarette. The confirmed smoker lights his fag almost as much from habit as from a desire for a smoke. It really is a menace and creates a hazard from lighted stumps almost wherever indulged in. It is not only a menace as far as fire is concerned, but also to mind and health. The excessive use of cigarettes dulls the intellect, destroys principles, and lessens morale.

The smoker seems to care little what the result may be to his employer, as long as he gets his drag. If an overseer was to take an operative's place while the operative had a drag, there are so many in a department that the overseer would be doing little else.

If cigarette smoking is to be countenanced in the mill, the logical thing to do is to allow a short time in the middle of each working period. Anyone breaking the rules would be fined the first time and discharged for a second offense.

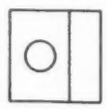
This problem of smoking has come about gradually because it has not been nipped in the bud. From the little acorn the mighty oak tree grew. G. W. S.

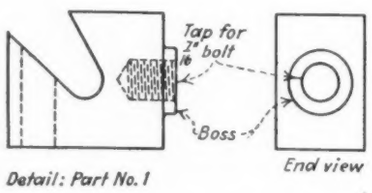
Practical Helps for Overseers

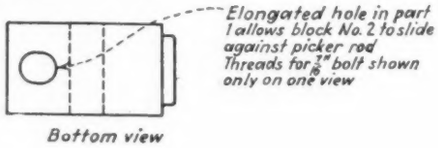
Picker-Rod Clamp

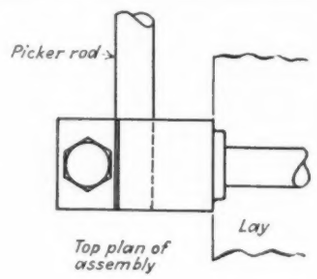
The picker-rod clamp shown in the sketch is designed to eliminate breakage of the rod and to hold it rigid so that it does not "flop" and cause unnecessary wear. The small bolt passing through parts 1 and 2 clamps the rod securely without any shearing action. A test has been run on this clamp since Jan. 6 and it has performed very well.

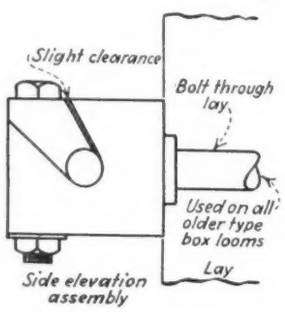
C. H. CALLAHAN






Elongated hole in part 1 allows block No. 2 to slide against picker rod
Threads for 7/16" bolt shown only on one view
Bottom view





I believe you will find dirty cotton or waste on the top of 75% of the flyers where the roving goes through the whole. These flyers should be blown out by air. Gouts can also be caused by the fleece on the clearer cloth becoming slick so that it does not collect the clearer waste as it should. This difficulty can be overcome by re-fleecing the clearer cloth with a piece of card clothing.

Waste will collect on the inside of roving bobbins. I know of one mill that cleans the bobbins with compressed air when they are empty. A rack is placed over a roving can or a sack and the air blows the dirty waste down.

Careful checking will show that about 75% of tangled work is on new bobbins with a slick top. The writer believes in putting a heavy coat of enamel on the top of the bobbin, extending it ½ in. down the side. This will increase the diameter of the bobbin at the top and stop the roving from slipping off. This will also decrease the waste, and increase production and breaking strength. F. C. ADAMS

Card-Room Suggestions

Each section hand should examine the machinery according to the following schedule:

1. One picker each week.
2. Each card after grinding.
3. About two lappers, combers, and drawing frames each week.
4. About four fly frames each week, preferably while being doffed.

Such inspections enable the overseer to ascertain in advance what repair parts and supplies will be needed. This would also help the shop force, as bad gears, etc., could be worked and ready for use before actually needed. Planning the job ahead increases production, decreases cost, and insures a better-running job.

Gouts in roving cause a lot of trouble and expense. In a careful check,

Questions and Answers

Silks on Old Looms

Technical Editor:

As a constant reader of TEXTILE WORLD, I take the liberty of asking you a question that is very important to me. Is it advisable or possible successfully to weave piece-dyed goods on a very old Crompton & Knowles 2 x 1 with a small sand roll and side filling motion instead of center filling motion? The goods to be manufactured on these looms are to be of all-silk quality with crepe filling of a good quality. Can such goods be made free from imperfections on this loom and be able to compete in the market today? (8340)

It is certain that unless you apply some of the modern improvements to your loom, you will not find it possible to compete in the open market on most fabrics; and even with the improvements applied, there will be many fabrics and constructions which will be closed to you.

We suggest that you install a feeler on your loom and, if possible, a let-off. These will cost relatively little.

Without a feeler, your filling motion does not stop on the pick and a major imperfection is caused every time the filling breaks or runs empty. With the feeler, this difficulty would be eliminated somewhat. A less expensive, and of course, less satisfactory solution would be to have a loomfixer apply an attachment to your pick wheel, so that when the filling breaks the wheel will automatically be released and will not pick up when the weaver is finding the pick.

Since we are not acquainted with the exact condition of your looms, the best we can do is recommend that you try the effect of a feeler and other improvements on one of them to see what results you get. We are certain, however, that you would be far better off if you installed a center filling motion, as you are competing against machinery of the highest type. Above all, stay away from cloths of light pickage, as these will be most likely to show up the imperfections which your old looms are bound to cause.

Leno Devices

Technical Editor:

What is the most reliable equipment to attach on 70-in. Gem head motion in the weaving of doup or crossed weave fabrics? We have tried those described in Posselt's loom book with poor success. (8322)

Numerous devices are in use throughout the country, but most of them have been devised by the weaving overseer in conjunction with the engineering staff of the mill, and the details have not been made public. However, we give below what appear to be very simple yet effective mechanical arrangements recommended by Thomas Roberts, in his book entitled "Tappet and Dobby Looms"; and by Thomas W. Fox, in his book "Mechanism of Weaving." It is quite possible that after a careful study of these two entirely different mechanical contrivances, you may be able to combine the best and most adaptable motions to your individual loom mechanisms, or you may even discover a better and simpler arrangement. In any case, a trial of either of the two would be well worth the trouble, as neither can be considered in any way exorbitant in installation costs. Under the caption "Doup Heald in Tappets and Dobby Looms," Thomas Roberts recommends the following method:

"A further method occasionally employed for stitching the selvages on narrow webbings when woven in a broad loom is illustrated in Fig. 65. The principle consists in the application of a doup heald, such as is employed in the production of leno and cross-warp effects. Two ordinary healds, *A* and *B*, are employed in addition to the doup heald, which consists of the heald *C* and the half heald *C'*. The crossing threads *D* are all put on to a spare beam or light roller.

"The crossing thread is first drawn through the heald of the shaft *A*, then passed through the doup eyelet formed by the heald loop *C'*, being interlaced with the mail or eyelet of the heald *C*. This is so arranged as to allow the loop *C'* to slide through the mail of *C* when the crossing thread *D* is drawn down by the heald shaft *A* to the right of the thread *E*, as shown in Fig. 65. The crossing thread is drawn down on the alternate or left side of *E* by the doup *C* and *C'*.

"The method of working is further illustrated by the pegging plan of the figure.

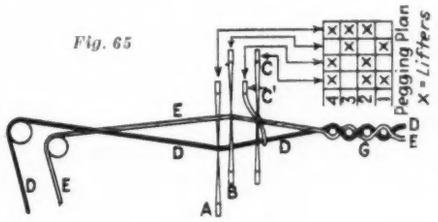


Fig. 65

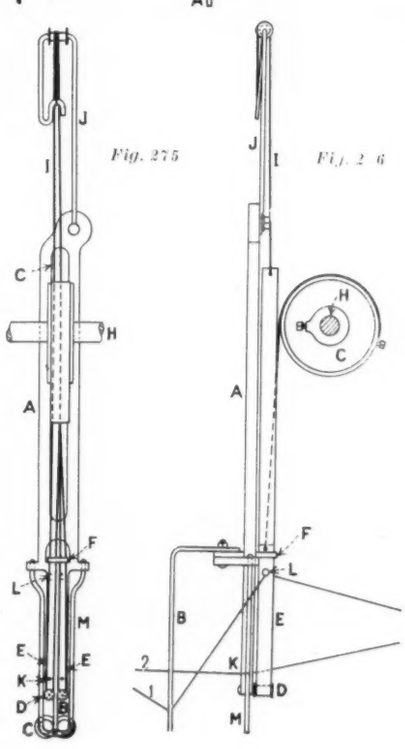


Fig. 275

Fig. 276

The first pick of the plan gives the position of the healds and threads as shown. The second pick indicates for the next change as follows: The heald *A*, the doups *C* and *C'*, and the thread *D* are lifted, whilst the heald *B* and the thread *E* are down. The third pick indicates the healds *A* and *B* lifted, also both the threads *D* and *E*, but the doup heald *C* and *C'* is down. Therefore the thread *D* is drawn down on the left side of *E* and across it. Owing to the thread *D* being lifted by the heald *A*, but depressed by the doup heald *C* and *C'*, it is essential to slacken the thread *D* to facilitate the crossing. This is usually accomplished by drawing the back-rest forward by some mechanical contrivance; e.g., this may be performed by means of a spare jack in the dobby. The fourth pick is like the second, the crossing thread is lifted, the thread *E* being depressed.

"The manner in which the crossing thread interlaces with the picks is shown at *G*. From this it will be observed that the threads *D* and *E* work plain, also cross and re-cross every two picks."

Thomas W. Fox, in his "Mechanism of Weaving," advocates, as being effective, the following mechanical arrangement:

"In 1886, J. W. Shorrock and T. B. Taylor patented the split motion shown in front and side elevations in Figs. 275 and 276 respectively. It consists in bolting a framing *A* to a cross rail above the warp. From *A* a wire *B* descends below the bottom shed line and is there coiled to form two eyes *C* that take the crossing threads I for adjacent selvages. At *D* the small flanged rollers turn freely upon studs in *A*. Two straps *E E* are bent around *D*, led through guides *F*, and, on plain looms, one end of each is made fast to the periphery of a pulley *G* set-screwed upon the heald roller shaft *H*. A piece of elastic *I* is hooked into the bend of wire support *J*, and the opposite ends of *E E* are secured to it. At *L* two brass eyelets are fixed in *E* to take the crossing threads 1, and the stationary threads 2 are drawn through separate eyes *K* in the frame *A*.

"The oscillating motion of *H* causes *G* alternately to unwind the straps from, and wind them upon its surface. As they unwind, the elastic *I* draws *E* up, and the eyelets *L* carry the crossing threads 1 beneath the flanged rollers *D*, and up on one side of the stationary thread 2. The reverse vibration of *H* moves all the parts back to their initial positions and places the threads 1 on the opposite side of 2.

"The wires *M* merely hold the ordinary warp threads away from the moving straps *E*.

"This split motion is comparatively inexpensive, and may be controlled by tappits, dobbies, or jacquards. In case either of the last named is used, a jack of one, and a harness thread of the other, are connected to a light lever that multiplies the lift of the straps *E*, for *E* must move through approximately twice as much space as either healds or harnesses."

Finishing Elastic Webbing

Technical Editor:

I am inclosing a small piece of elastic webbing which is evidently made from cotton yarns which have not been mercerized. The webbing is very stiff and seems to be loaded with some type of size. In spite of this heavy size, the bandage retains whatever luster there was in the non-mercerized yarns, and it is possible the luster is even greater due to the sizing operation. Any starches or gums I have used for stiffening elastic have always killed the natural luster in the

yarn, and even mercerized yarns have a very dull appearance if they are heavily sized. Can you tell me what sizing solution to use to obtain this high luster and yet a very stiff finish? (8304)

We find that the sample of elastic webbing is composed of three elements; namely, a cotton filling, a plain warp, and cotton warp threads wrapped around the rubber. The boil-off of the plain warp and the filling is only 2.75%, which is just about the boil-off loss one would expect to find on dyed or tinted yarn. After the rubber is removed from the rubberized warp, the boil-off is 9%. This includes the natural boil-off of the cotton due to its impurities, etc., and likewise the boil-off due to size added. We believe that somewhere in the neighborhood of 5% to 6% size has been added to the rubberized warp. This is probably where the stiffening effect is obtained.

From these figures, we are inclined to believe that this rubberized warp has been sized in a slasher and that the plain warp and filling have not been sized. In other words, the piece has not been sized or stiffened after weaving, but the warp was sized before it went onto the loom. A size mixture which should impart 5% to 6% added size to a warp of this character would probably be approximately 80 lb. of starch, such as potato starch; 7 to 8 lb. of a pectin gum; and 8½ lb. of a good tallow softener. This size could be made up by mixing the starch and gum with 90 gal. of water, mixing cold for 20 min., then bringing to a boil in ½ hour, adding the softener and boiling 1½ to 2 hours, or until the correct consistency is obtained. This should make approximately 120 gal. of cooked size. The speed at which the material can be sized depends somewhat upon the drying capacity of the slasher. The yarns appear to be made from especially lustrous cotton, and we believe they were bleached or partially bleached before dyeing. After weaving it evidently is calendered further to bring up the luster.

Woolen-Mill Cost Finding

Technical Editor:

We have been informed that some of the woolen mills manufacturing wool-spun and wool-spun filled fabrics have a standard basis for calculating their manufacturing and overhead costs based on picks. We shall appreciate your advising us whether or not you are familiar with such a practice. If so, please state the basis or cost per pick that is most frequently used. (8339)

It may be stated that the tabulation of an accurate and reliable standard basis for calculating manufacturing and overhead costs based on picks is quite impractical. Two or three decades ago, when manufacturers were able to confine themselves to the production of one or two fabrics, such a cost-finding system was not only fairly accurate, but much in evidence. Nowadays, however, the greatly increased multiplication of fabrics manufactured, the various counts of yarns used and the consequently large variations in picking preclude the adoption of such a system. So far as we know, no up-to-date organization is attempting to base its cost-finding operations on such a variable foundation as picks alone. Accurate figures can be obtained only by due consideration of all operations in their proper sequence and not by the easier but more dangerous method of computing averages.

By way of illustrating the impracticability of costing on a pick basis, let us examine the two costs of the same construction but different finishes below.

It will be observed that No. 1 finish, which receives only enough fulling to obtain the necessary width contraction, shows a saving in finishing operations alone of approximately 1c. and a further saving of roughly 13c in length shrinkage. Therefore, by deducting the cost of raw material per yard—i.e., 18.6 oz. x 60c, or approximately 70c—from the finished cost of each cloth and dividing by picks, we find that No. 1 cloth averages slightly over 1.75c per pick, while No. 2 cloth averages nearly 2.25c per pick.

This practical example demonstrates beyond any question that accurate cost finding cannot be computed on a pick basis alone. As a matter of fact, costing is influenced much more by the finished weight than by the number of picks per inch inserted, as the latter, combined with the ends per inch, primarily provides textural firmness or density. Thus a slight variation of either makes little or no material change in the dressing or weaving costs, whereas the finishing process combined with variable length shrinkage proportionately affect the weight per yard, which in turn modifies the manufacturing costs.

The cost figures used are not taken from any special mill, but are indicative of present-day processing costs. Any modification made would affect both cloths, so that the same differentiation in resultant cost per pick would be maintained.

Setting:—7½-4, 72 in. 2160 ends, 32 picks
Loom weight, 18.6 oz.
Finished Weight No. 1 finish, 15 oz., 56/58 in. wide.
Finished Weight No. 2 finish, 17/18 oz., 56/58 in. wide.
Dressed 60 yd., woven 54 yd.
Finished length: No. 1 finish, 54 yd.; No. 2 finish, 49 yd.
4 Looms per weaver.
Warp and filling yarns, 4-typp (2½-run, 13 1-3-cut woolen.
Blend, 60 c. Yield, 90%.

Yarn Cost for Both Finishes	No. 1 Cloth	No. 2 Cloth
Blend	.6000	.6000
Picking ... .0088		
Carding ... .0115		
Spinning ... .0230 =.0433		
Indirect labor 46%—.0199=.0632		
Indirect labor ..... 46%—.0199=.0632		
Dyeing 0125		
Indirect labor 85% .0106= .0231=	.0863	.0863
Dyes	.0500	.0500
Oil	.0030	.0030
	.7393	.7393
90% Yield	.0844	.0844
	.8237	.8237
50% Overhead	.0431	.0431
Cost yarn per lb.	.8668	.8668
Weight of warp and filling per yd., 18.6 oz.	1.0076	1.0076
3% Waste	.0314	.0314
	1.0390	1.0390
Spooling, dressing and drawing-in	.0270	.0270
Weaving	.0375	.0375
Burling, sewing and tacking	.0150	.0150
Finishing	.0284	.0365
	.1079	.1160
Indirect labor 22%	.0237	.0255
	.1316	.1415
	1.1706	1.1805
No. 2 cloth, 10% shrinkage		.1312
		1.3117
Supplies	.0160	.0160
General overhead, 60%	.0849	.0849
Cost per yard	1.2715	1.4126

Printing Rollers

Technical Editor:

We shall appreciate your replies to the following questions in regard to the treatment and cost of printing rollers:

1. Have you any information on cost of grinding off the surface and polishing rolls for reengraving and use again?

2. Have you any information on the cost of "plating up" rolls for further use which have been reduced too small by grinding, polishing and re-engraving?

3. Approximately how many times can rolls be reground and polished before they have to be plated or built up again for engraving?

4. Out of the average of 150 rolls for each printing machine, we assume there are: (a) smooth rolls ready for engraving; (b) permanent design rolls for future use; (c) staple design rolls for regular use; and (d) seasonable design rolls for current immediate use. How many of each would be a fairly general idea of the average of 150 rolls to the machine? (8318)

1. When rolls are turned down on a lathe, it takes a man approximately 20 min. to set up the roll and turn it off. The time, of course, varies with different machinery and different operators. If roll is then polished by hand with stones or polishing lathe, it will take another man approximately 2 hr. to get the roll in shape for re-engraving. If you figure the men's pay at 40 to 50c per hr. this will give you an idea of the labor cost, to which the overhead must be added.

2. With the price of copper at the present level, it is estimated that it is cheaper to trade in small rolls, plus copper turnings from the lathe, for full-size rolls than to invest in copper-plating equipment. If the price of copper goes much higher, the reverse will probably be true. We have no information as to actual cost of "plating up."

3. The life of a roll depends entirely on the original size of the roll and the depth of engraving used each time. Some rolls are used which have a diameter of 20 in., while the average is 15 to 16 in. If the engraving is light, a 1/32-in. cut on the lathe will be deep enough, while the heaviest types sometimes require as much as a ¼-in. cut. We do not know of any cut deeper than this ever being used. Rolls are usually discarded at 14 to 14¼ in., depending on the quality of the copper. This is due to the fact that copper as thin as this will develop "bumps" or will buckle and sometimes split from small pieces of trash or even wads of grease when the mandrel is driven on or when heavy set is applied on the printing machine. It is cheaper in the long run to discard the roll than to go to the expense of engraving it and then have it go bad in the print room.

4. It is impossible to give a definite answer to this question. In plants doing job work, patterns are entirely dependent on the customer, and in some cases no smooth rolls are kept on hand; but rolls are turned down and polished as needed. This is because of the fact that some patterns are cancelled by a customer and then renewed, and if the roll is on hand already engraved, that much time is saved. In addition, if a roll is turned and polished and then allowed to stand for any length of time, it is usually necessary to repolish it to remove any formation of oxide before the engraving process can be begun. The number of permanent and/or staple design rolls depends on how many stock patterns a customer wants to keep active. Stock patterns which are printed frequently are usually

engraved on two to four different rolls, so that the pattern may be printed without delay, even if something should happen to a roll during printing; i.e., splitting, wearing down, damage from dropping, etc.

Some plants keep as many as 350 to 400 rolls per machine, so that a customer can keep a pattern active, with the rolls engraved and ready to print. Various lines of printing, such as dress goods, will require more rolls than others, such as shirtings.

Throwing-Plant Conditions

Technical Editor:

I should like to have your opinion on some of the conditions at a certain throwing plant. Humidity is at times as low as 35%. Windows wide open, humidity system full. Take-up rolls on twisters have cork worn so bad that the iron shows through in places. Steaming bobbins are very much out of round, flanges bent so as to catch on side of take-up rolls making ridge bobbins.

In doubling twelve to sixteen ends of 20/22 on 5B doublers made to double 6 ends, four to six threads are first doubled, then these bobbins with taper holes are placed on the pin racks. The large end of the hole is outward on these pins for the Z twist and the small end is outward for the S twist. As the yard is drawn from these bobbins on second doubling, the bobbin wobbles very badly and a jerky motion is given to the yarn as it is being doubled, which I believe causes kinky yarn.

Is it possible to make a good thread without kinks, such as two threads of five ends twisted together? Would it not be better to make it five threads of two ends each?

Do you think a good even silk cloth can be made from thread made under these conditions?

Do you think it is better to have tight gudgeons in steaming bobbins? With a tight gudgeon, the only bearing the bobbin gets is on its end to retard the turning of the take-up bobbin, whereas with loose pins, the bobbins are moving from side to side with the flanges of the bobbins rubbing on the take-up rolls and fingers of the twister with the flanges out of true.

In steaming, would it not be better to have an automatic control valve so that the heat, pressure, and moisture would be the same through the entire time of steaming, instead of depending on the human element for this? (8296)

Humidity should be kept at 65%. Why run the humidifying system at all if the windows are kept open?

Take-up rolls should be recovered immediately.

Steaming spools with bent flanges should not be used under any circumstances. Loose-gudgeon steaming spools and tight-gudgeon spools serve equally well on twisting frames. Each type has disadvantages which are balanced by advantages not possessed by the other. The type of spool should be determined by the kind of redraw supply device you have available.

The creel pins on your 5B's should be the same diameter as the bore at the top of your 5B spools. The slight wobble then remaining will not affect your yarn. Neither will the highest speed at which you operate this process wear your spools.

You will certainly get more uniform results doubling five threads of two ends each, instead of two threads of five ends each. This implies of course that you have sufficient 5B capacity.

Your letter indicates that your plant needs a thorough mechanical overhauling. If you cannot afford it, keep away from quality crepes and stick to underwear.

By all means control your steaming automatically.

Personal News

Render Jimerson, who has held the post of superintendent of spinning at Rushton Cotton Mills, Griffin, Ga., has been placed in charge of carding also. Other changes are: **Jake McHeffey** becomes superintendent of weaving; **Lester Brooks** becomes superintendent of the cloth department.

Ben W. Johnson, for many years manager of the Mayfair Mill Co. store at Spartanburg, S. C., has resigned.

Henry B. Malone, recent graduate of the Textile School of Clemson (S. C.) College in textile chemistry and dyeing has accepted a post with the Armco Cotton Mills at Burlington, N. C.

O. A. Mace, second hand in weaving department at the Springstein (S. C.) mill of the Springs Cotton Mills, Chester, S. C., has been made overseer.

Lloyd Pettitt is now overseer of dyeing and finishing at Saybrook Woolen Co., Riverpoint, R. I.

Virgil E. McDowell, overseer of carding and picking at Eagle & Phenix Mills, Columbus, Ga., for the last ten years, has resigned.

Benjamin Wishnietsky, a graduate of the 1935 class of New Bedford (Mass.) Textile School, who has been employed in the drug room of the Bertram Goldberg, Inc., Johnstown, N. Y., is now in charge of the dyeing department. He is succeeded in the drug room by **Richard O. Barry,** a graduate of the New Bedford Textile School this year.

John Sharples, formerly with Ponemah Mills, Taftville, Conn., has been named master mechanic for the new East Lyme Bleachery Co., Flanders, Conn., and **Lynwood Mort,** formerly with Rockville Bleachery Co., Garnersville, N. Y., has been placed in charge of bleaching.

J. P. Dover is now card grinder at the Gayle plant of Springs Cotton Mills, Chester, S. C.

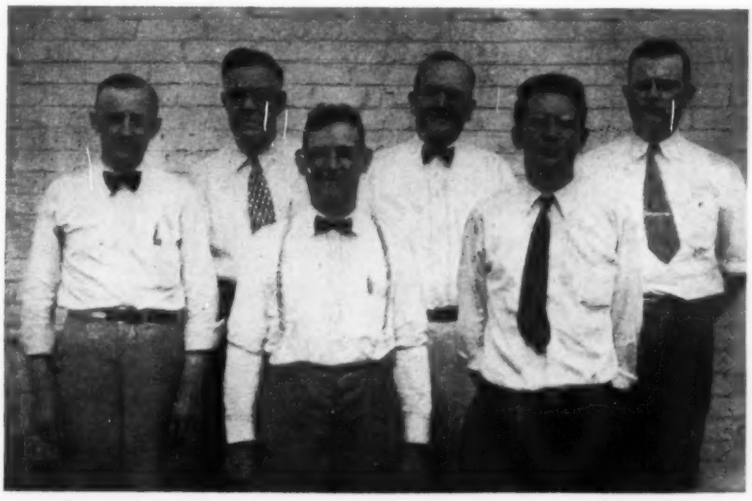
J. A. Turner, formerly of Charlotte, N. C., is now overseer of the weaving

Two New Associations

***ORGANIZATION** of the Textile Analysts, Designers & Technicians Association was completed at a meeting held in Fall River on July 11. The purpose of the association is the collection of technical data for the mutual benefit of all members, and the study of new ideas and developments. Officers are: president, Henry Fallows, Jr., Berkshire Fine Spinning Associates; vice-president, Edmund B. Gifford, Luther Mfg. Co.; secretary, Thomas E. Mason, Jr., Pilgrim Mills.*

***VERMONT** overseers gathered at Lowell Lake on July 11 and organized the Green Mountain Overseers Association. Frank E. Brazeal, the guiding spirit in the move to start the association was elected president. Other officers are: vice-president, Maurice J. Lannon; treasurer, Thomas E. Bardsley; secretary, R. H. Claggett.*

KEY MEN AT VICTOR-MONAGHAN CO., GREER, S. C.



Left to Right: T. G. Stroud, overseer of carding, E. C. Herrin, overseer of spinning, A. C. Elmore, master mechanic, W. E. Brown, overseer cloth room, R. A. Littlejohn, overseer weaving, Fred L. Still, superintendent. Mr. Still recently was elected president of the Southern Textile Association.

MEET MR. BOLT

J. MANNING BOLT, general overseer of weaving, Brandon Corp., Greenville, S. C., likes baseball. He likes it so well that he puts in much of his time working for the Brandon team, of which he is manager. Last year, the team won two pennants—champions of the King Cotton League and the Mid-Week League! Only 16 games were lost out of 87 played, and two of the players went with important professional teams. Veach joined Connie Mack while Owens went with Nashville.

But let's get back to Mr. Bolt. In addition to being a lover of all forms of sport, he is interested in the community and in young people. He is superintendent of the Young People's Department of the local Baptist Church. Part of his time is given over to the operation of a vocational school, sponsored by the mill, designed to help ambitious young men learn more about their jobs. Mr. Bolt does not teach classes himself but several of his overseers help with this work.

As to his business career, Mr. Bolt was born in Laurens, S. C., one of a family of ten. His father died when he was two years old. He received his education at Piedmont (S. C.) High School and Clemson College, attending the latter for two years. As a young man deciding on a career, he had no intention of entering the textile business. However, he was offered a job, and liked the work so well that he has followed it ever since. Mr. Bolt now is only 37 years old, but has held responsible positions with a number of mills including Ware Shoals Mfg. Co., Springs Cotton Mills, Steele's Mills and Brandon Corp.

department of Monroe, N. C., unit of Manetta Mills.

Albert Stone, formerly wtih U. S. Finishing Co., Norwich, Conn., is overseer of dyeing at Derby (Conn.) Dyeing & Finishing Co.

John J. Heslin, formerly with Amoskeag Mfg. Co., Manchester, N. H., is now overseer of dyeing for Waltham (Mass.) Bleachery & Dye Works.

Louis Radloff has succeeded **Irwin Taft** as overseer of finishing at Yale (Mich.) Woolen Mills. He was formerly second hand.

John Lawton has been made overseer of dyeing at Airlee Mills, Inc., Hanover, Conn.

W. B. Morgan has resigned as overseer of weaving at Minneola Mfg. Co., Gibsonville, N. C., to become superintendent of Florence Mills, Forest City, N. C., where he replaces **N. H. Welch** in that office.

Alva Norris has been promoted to shift foreman of spooling and warping at Bibb Mfg. Co., Columbus, Ga. **L. M. Thompson,** formerly overseer spooling and warping, has been promoted to office manager.

M. B. Whichter is now in charge of finishing at Thayer Woolen Co., North Oxford, Mass.

Tracy Evans is in charge of dyeing and finishing for J. B. Clark Co., Rochdale, Mass.

Frank N. Hatchett, who has been connected with the Macon, Ga., plant of the Bibb Mfg. Co., for the last two years, has been promoted to the cotton department and transferred to the Columbus, Ga., plant. He succeeded **Roy Tatom.**

E. S. Ray, overseer of carding and spinning at the No. 3 mill of the United Spinners, Inc., Dallas, N. C., will continue in that capacity under the new owners.

John Franks, formerly of Whitmire, S. C., is now overseer of weaving at the No. 3 plant of the Republic Cotton Mills, Great Falls, S. C., which is the silk mill of the company.

B. H. Bridgman, of Gainesville, Ga., is now overseer weaving at Whitney (S. C.) Mfg. Co.

J. R. Kirkpatrick is now overseer carding at the Lockhart, S. C., plant of Monarch Mills.

J. Beacham Wray, with Renfrew Bleachery, Travelers Rest, S. C., since graduating from Clemson College in 1933, has been made overseer of bleaching and finishing at the Spray, N. C., bleachery of Carolina Cotton & Woolen Mills Co.

Charles A. Brooks has been transferred from overseer spinning at Georgia-Kincaid Mills No. 3, Griffin, Ga., to the same position at the No. 2 plant. He exchanged positions with **J. R. Jinks.**

E. P. Sheetz, overseer of weaving for the Cabot Mfg. Co., has resigned to become superintendent of a new weaving mill in Syria. Mr. Sheetz sailed from New York on July 21 on steamer Exachorda. He was formerly connected with the Androscoggin Mills at Lewiston, Me.

Virginia Reinheimer is assistant designer at the Spray Woolen Mill and **Eleanor Green** is assistant in the designing department of the cotton mills of the Carolina Cotton & Woolen Mills, Spray, N. C. These two young women were the first of their sex to receive undergraduate textile degrees from N. C. State College where they were graduated last spring.

MUSICAL KNITTERS

The Cooper, Wellsians' orchestra is rated as one of the finest employee units in Alabama. Its success has been so widespread that the largest building in Decatur has been taken over to accommodate the huge crowds attending these performances. This building has taken on the name of "Cooper, Wells Civic Center", and is maintained exclusively by the orchestra itself. The musicians are, of course, all workers at Cooper, Wells & Co's. hosiery mill.

H. L. Childress has become overseer of weaving at the Gainesville (Ga.) Cotton Mills.

Francis E. McMullen of New Bedford, Mass., who graduated this year from the New Bedford, Mass., Textile School, general cotton manufacturing course, is now associated with the Blue Ridge Rayon Co., of Alta Vista, Va.

Edmund K. Flynn, of New Bedford, Mass., a graduate this year of the New Bedford Textile School, has obtained a position with the Cascade Mills in Mooresville, N. C.

B. H. Bridgman has assumed his new duties as overseer of weaving at Whitney (S. C.) Mfg. Co.

G. G. Simmons, formerly with National Weaving Co., Lowell, N. C., is now assistant superintendent of Drayton Mills, Spartanburg, S. C.

C. R. Chesbro has been named overseer of carding, spinning, and picking at Baltic Mills of American Woolen Co., Enfield, N. H., succeeding **Arthur Worth,** who has been appointed yarn superintendent of Horner Bros. Woolen Mills, Eaton Rapids, Mich.

R. I. Textile Mills Offer Scholarships

TEXTILE WORKERS from all parts of Rhode Island gathered at the Rhode Island School of Design Textile School on Friday, July 24, to take preliminary examinations for free scholarships sponsored by the Rhode Island Textile Association and subscribed for by 25 member mills. The candidates represented every branch of the industry and all the various types of employment. Of the 220 in the group, 47 were successful in passing this first examination. Final examination will be held Sept. 11.

What Wools Together

Will produce a worsted blend having the composite properties wanted?

By Frederick B. Hudson

FIBERS may be blended at two stages in the manufacture of worsted yarn: (1) prior to scouring and (2) in the early drawing operations. Blending wools before scouring gives better mixing than can be obtained when tops are mixed in gill boxes. To combine fibers having individually different features and obtain an even yarn, it is necessary to mix the components as early as possible, because cards and combs mix the fibers better than gill boxes and drawing machines.

Fibers are blended to obtain features from several types of wool, such as softness, handle, fineness, length, and strength. Price is an important item in blending. In order to produce a blend for a specific price, for example, a top maker may use up odd lots of wool or introduce inferior qualities. Blending also is done to maintain standards of quality. Since spinners rely upon tops known by specific quality designations, the quality cannot safely be allowed to rise when wool is cheap and plentiful, or to drop in the lean years.

Blends of wool used in worsted mills are the result of years of careful planning, testing, and experimenting. The aim of the blender is uniformity, and he plans each lot so that the wools afford this quality in fineness and length. Let me take as examples a few specific blends within my experience. Although American readers may not be entirely familiar with some of the wools I mention, they will know enough about them to understand readily the points I am trying to make.

In Blend No. 1, the 64s matchings from the haunches of 70s Victorian fleeces give length to the blend, whereas the matchings from the shoulders of 64s Cape add fineness and softness of handle.

Using Pulled Wools

Pulled wools should be added to blends with discretion, as these wools lack handle and brightness. The 40% of pulled wool added to Blend No. 2 is compensated for by Port Philip wools, which improve the handle and color, and by South Australian, which gives fullness. It is not advisable to add pulled wool to blends which are to be used for bright colors or for fabrics which need a light and lofty handle.

Tops should not be composed entirely of pulled wool, and it is therefore desirable to mix the ingredients in the raw state. The "pile" should be laid out in very thin layers and planned so that the pulled wool is well sandwiched between the greasy wools. Irregular allotment of the types of wool in the pile gives an uneven distribution of the fibers to be blended and makes patchy tops and yarns. Scouring pulled wools with grease wools helps to remove some of the harshness and assists in improving the color.

Blends for Knitting Yarns

Blends of wool for knitting yarns depend upon the type of garment for which they are to be used. A suitable grouping of wools for knitted underwear is given in Blend No. 3. South American merino wools of the Chubut, Rio Negro, or Santa Cruz type make splendid knitting yarns, owing to their fullness and springiness of handle; and when they are combined with Queensland and West Australian, a good soft and sound blend is obtained.

The harsher wools of Blend No. 4 are not suitable for underwear, but they make outerwear garments. It is not advisable to blend merino wools with downs and fine crossbreds, as the fine merino fibers tend to "bed in," which gives fullness but does not remove the harshness.

Softness of handle is a feature desired in yarns and fabrics both woven and knitted. The skill of the blender is tested in planning the blends so that a maximum softness is obtained in the resultant top. In many cases softer wools are added to tone down the blend. A soft-handling full wool, such as a Corrientes, Falkland, or Montevideo, is added to Blend No. 4 to give the desired softness.

Luster is essential in the longer

Mixing stock from the floor

types of wool. Therefore, in Blend No. 5 care should be taken not to add any ingredient which is deficient in length or luster. Pulled wools vary in length and should be analyzed carefully before being added to the blend. In some cases it is necessary to lower the quality to get the desired length. Should the demi-luster wool be a high-quality Border Leicester, Kent, or Cotswold with good luster and length, it would be possible to produce a satisfactory top by using up some 40s pulled crossbred which is deficient in length.

In a similar way, high-quality luster wool of Lincoln, Leicester, or Devon types can be blended with crossbreds similar in length and fineness in the ratio of 1 to 3, as shown in Blend No. 6.

Blends Suitable for Worsted Tops

Blend No. 1. Average 64s for coatings and dress goods. 50% 70s Victorian haunches. 50% 64s Cape shoulders.

Blend No. 2. Average 60s for suitings. 30% Port Philip. 30% South Australian. 40% Australian pulled wool.

Blend No. 3. Average 60s for knitted underwear. 50% Chubut. 25% Queensland. 25% West Australian.

Blend No. 4. Average 56s for knitted outerwear. 40% Down, Shropshire, or Hampshire. 30% Punta. 30% Corrientes.

Blend No. 5. Average 46s for serges and overcoatings. 30% Down. 30% Demi-luster. 40% New Zealand crossbred pulled wool.

Blend No. 6. Average 40s for linings. 75% New Zealand crossbred. 25% Luster hog.

Buck-passing can be avoided by

Fixing Responsibility

By L. L. Kingsford

WHAT I saw while looking over some mills a few months ago leads me to express the opinion that the matter of responsibility for waste, quality of product, etc., should be gone into more thoroughly. One mill, which has a national reputation for its goods, had some bobbin-stripping machines operating at the time of the visit. When I looked into the bin from which the bobbins were fed to the machines, I saw that here were a great number of bobbins with yarn on them. Some of the bobbins had as much as one-third of the original quantity of yarn! The men who were putting the bobbins into the machine did not seem in the least concerned as they dropped in bobbin after bobbin full of yarn, filling basket after basket with waste.

In another establishment, where skein-spooling of colored work was being done in one department, the workers were cutting off full skeins which they could not immediately get started. Some went into the waste box, and some went out of the mill yard! It is essential that a good, but simple, method of allocation of responsibility for waste made be evolved; one in which the waste from each process is definitely established at a minimum. Any excess over this amount should require an explanation.

Bearings May Be Bad

Anyone who has ever looked over a machine that is being pulled down for repairs knows the shock that he experienced when he examined the various studs and bearings; many of them gave evidence of lack of lubrication. Faulty lubrication may be charged for thousands of dollars which go stealing out of the mill treasury. Too many mill officials believe that when they supply oil, oil-tanks, and oil-cups, their lubrication problem is solved.

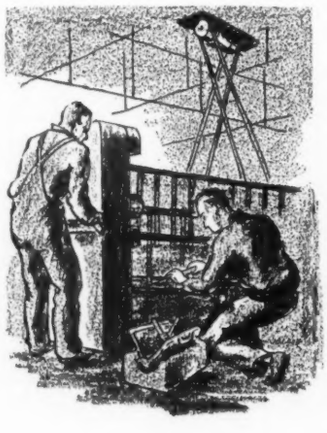
An unheralded walk through the mill, with just the one idea of seeing how the lubricating is being done, will set many a president and treasurer to thinking. There should be an oiling schedule for every type of machine in the plant—a lubrication chart—and the responsibility for looking after the oiling should be fixed so that there can be no evasion. After the system is running smoothly, a quantity responsibility should be determined, *i.e.*, the amount required should be set and any quantity used in excess should require an explanation.

Supplies Wasted

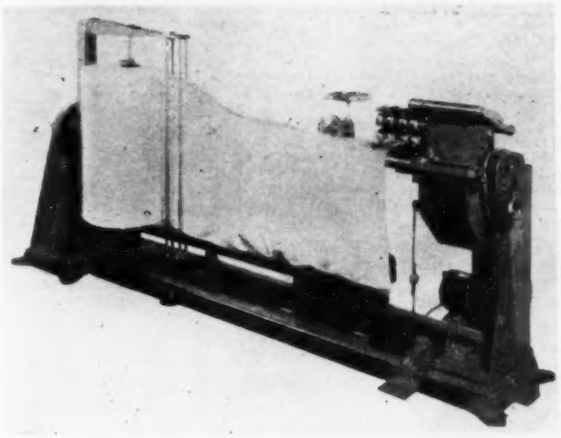
The matter of waste in supplies due to irresponsibility on the part of section hands and second hands should also be checked. If there is a central supply station in the plant, the storekeeper should be made responsible for accepting wornout supplies, such as brushes, brooms, etc.; but before the storekeeper gets the parts, they should be examined by the second hands of the various rooms so that they can be certain that only material actually requiring replacement is sent to the central supply station. If there is no one held responsible in the matter of supplies, it will be found, as the writer has witnessed, that a worker may be displeased with a new broom shortly after he or she has received it, and will throw it in with the brooms that are to be discarded. Without a check, it is possible that the broom—practically new—will find its way into the boiler room. Where possible, no supplies should be issued unless the worn piece is turned in. This is almost a specific for pilfering. In the matter of responsibility for the product, there should be standards of quality, quantity, and cost. An easily worked-up method of checking the quality at each process must be evolved, so that the responsibility for any falling away from the standard can be brought right home to the offending party.

Overseers should be held accountable for their respective departments, and should report only to the superintendent. They must see that the materials they receive are of good quality, and must be sure that they themselves turn out a first-class product.

The various points that have been touched upon show that, throughout the plant, responsibility should be carefully charted and fixed. It will be found that responsibility, correctly gaged and properly allocated, will increase the confidence of the workers in themselves and in the firm, making them producers of a larger quantity of better quality.



NEW MACHINERY & PROCESSES



Collarette and Strip Cutting Machine

J. A. Firsching, Inc., 614 Broad St., Utica, N. Y., has developed a bias collarette and strip cutting machine which is said to offer the following advantages: cutting direct from a roll means starting only once and provides simplicity of guiding fabric; two or more strips can be cut at the same time; speed of the machine depends on how fast the operator can handle the work; time and waste in cutting lengths are saved; the crushing cutter will handle all kinds of fabrics; less than a minute is required to change for the various widths; standard machine is equipped with two knives and a motor drive, and additional knives may be added as required.

Packed Bearing

The Precision line of wholly inclosed bearings manufactured by Norma-Hoffman Bearings Corp., Stamford, Conn., is now packed with a grease pre-tested for maximum stability. As a precaution against oxidation and premature hardening of the grease, the bearings are wrapped in aluminum foil. The methods of testing and of packaging are the result of an investigation by the company's research department.

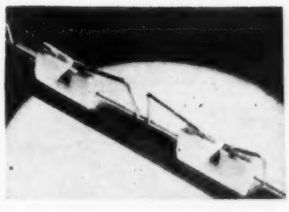
Cellophane Staple Cutter

Cellophane bands can be cut into staple for mixed spinning with the cutter developed by F. J. Stokes Machine Co., 5948 Tabor Rd., Olney Sta., Philadelphia. The staple produced is suitable for use in making lamé cloth or specialty yarns. The cutter consists of a 20-bladed knife, which operates at approximately 750 r.p.m., with synchronized feed for the Cellophane, makes 15,000 cuts per minute, and is driven by a ¼-hp. motor.

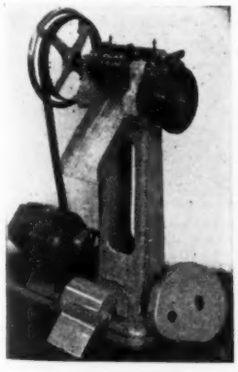
The Cellophane is fed to the machine in continuous length, and in a width equal to the staple length required. Several bands can be fed at the same time to increase production. Knives are of the self-sharpening type and the stationary blade is adjustable. All moving parts are guarded, and the multiple-blade knife is carried in adjustable roller bearings.

Traverse Bar

Winders and twisters built by Atwood Machine Co., Stonington, Conn., are now equipped with an improved traverse bar. The greatest advantage of the new bar is that the guide is easily adjusted to any spacing and, at the same time, is firmly fixed.



The wires are formed and secured in such a way as to exert firm, equalized pressure on each guide. The bar may be used on machines spaced up to 8¼ in. and can be used as a replacement on older models of twisters and winders.



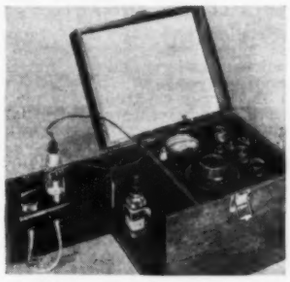
Improved 1,000-Watt Lamp

Radical changes in the design of its 1,000-watt Mazda lamp have been made by Westinghouse Lamp Co., Bloomfield, N. J. One change is the T-24 inside-frosted Pyrex bulb, which is tubular in shape and about half the size of the bulb previously used. The new lamp permits the use of smaller reflectors and accessories, thereby contributing to lower installation costs. The Pyrex bulb will also withstand water and moisture breakage better.

It is stated that for the first time in lamp engineering a structural member has been incorporated within the bulb of the lamp to collect and localize the tungsten blackening, and thereby assure maintenance of higher lumen output and efficiency throughout operating life. This is accomplished by two wire meshes, each about 1¼ in. square, which are attached to the lead-in wires just above the filament when the lamp is in its correct burning position.

pH Meter

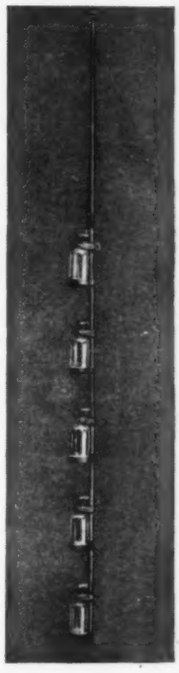
Announcement to the textile industry of the Coleman portable pH electrometer has been made recently by Wilkins-Anderson Co., 111 N. Canal St., Chicago. The device is self-contained, and can be taken to any machine or vat where it is desired to make pH determinations. Features include direct-reading dial, factory-sealed glass-and-calomel electrodes already prepared for use, overall accuracy of 0.05 pH, speed of operation—determination of pH being a matter of seconds, range of 1 to 10 pH, and no preparation of electrodes required other than washing in distilled water.



The instrument has already found numerous applications in other industries and is believed by the manufacturers to be highly suitable for use in textile mills.

Liquid-Caustic Sampler

Ease and accuracy in sampling liquid caustic in tank cars are featured in the device developed by Mathieson Alkali Works, Inc., 60 East 42d St., New York. A tube support carries brackets holding five sampling bottles, so that samples may be taken from different levels at the same time. A rod with an operating handle at the top extends the entire length of the inside of the tube. Extending through slots in the tube there are five arms attached to the rod, each one carrying the stopper for the corresponding sampling bottle. In using the sampler, the operating rod is pressed down to close the stoppers in the bottles. The sampler is lowered to the bottom of the tank and the operating handle lifted to remove the stoppers.

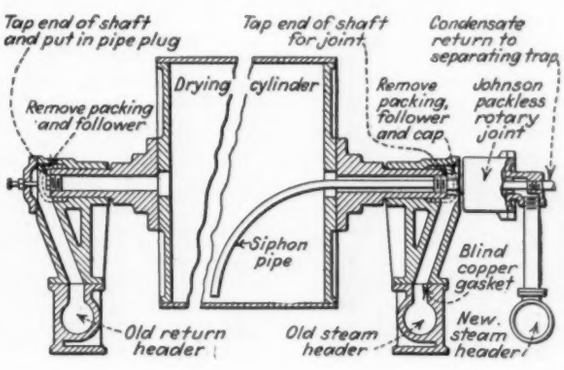


When the bottles are filled, the stoppers are closed, the sampler is raised from the tank, the bottles are removed, and the contents are poured into a common container.

Pressure Joint for Dry Cans

A packless pressure joint for use on dry cans has been brought out by Johnson Corp., Three Rivers, Mich. It consists of two ball-end members spaced by a spring which bears against two graphite rings. One ring serves as a bearing surface, and the other serves as a pressure seal. The spring is used merely for initial seating. After steam enters the joint, the pressure takes care of the seating. As a result, the sealing force is in direct proportion to the pressure. The joint is self-lubricating, and a ball-and-socket effect compensates for angular misalignment and provides for a small amount of lateral misalignment.

A siphon pipe is provided, which is drained by a steam trap of the non-air-binding, inverted-bucket type. The differential pressure caused by the trap discharge forces the air and condensate out through the siphon pipe whether or not the machine is running. It is stated that with this method of drainage machines are ready to operate 5 or 10 min. after steam is turned on.


Tap end of shaft and put in pipe plug
Tap end of shaft for joint
Condensate return to separating trap
Drying cylinder
Remove packing and follower
Remove packing, follower and cap
Johnson packless rotary joint
Siphon pipe
Blind copper gasket
Old return header
Old steam header
New steam header

Automatic Motor Base

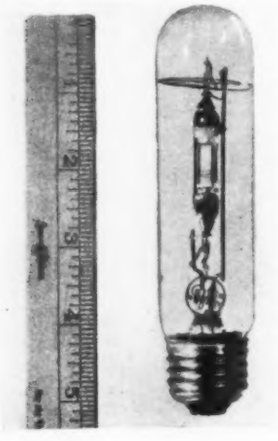
Uniform belt tension throughout the speed-range adjustment of the Vari-Pitch Texrope sheave is provided for by the Straitline automatic ball-bearing motor base developed by Allis-Chalmers Mfg. Co., Milwaukee, Wis. Four ball bearings, totally inclosed and lubricated for the life of the unit, support the upper half of the base and the motor. The travel of the base is in a straight line. A dial indicator permits the operator to maintain the correct belt tension at all times. The handwheel on the base controls the speed of the Vari-Pitch Texrope sheave, and simultaneously moves the motor a sufficient amount to compensate for the change in centers resulting from the variation in the diameter of the sheave.

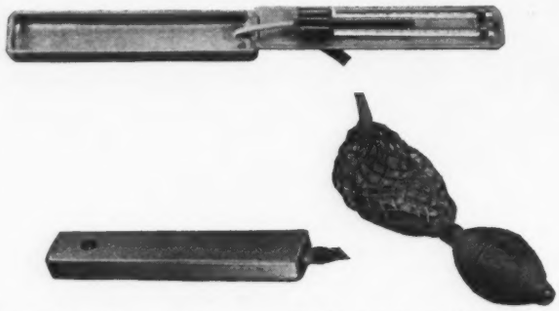
Vibration Insulators

A standard line of vibration-damping, rubber-to-metal mountings has been announced by B. F. Goodrich Co., Akron, Ohio. The mountings are of the shear type, consisting of an age-resisting rubber bonded to two metal plates, one of which is fastened to the vibrating member and the other to the support or foundation. The rubber is attached to the metal plates with a brass plating type of bond that is said to give an adhesion of 200 lb. per sq. in. The mountings are available in a range of sizes for loads of 50 to 3,000 lb. and for various vibration frequencies.

Small Mercury-Vapor Lamp

An 85-watt, mercury-vapor lamp, having a light output of 3,000 lumens and a high unit brightness, has been introduced by General Electric Vapor Lamp Co., Hoboken, N. J., as the latest step in broadening applications for the bulb-type mercury lamps. The actual light source is a minute column of mercury vapor, less than 1-in. long, raised to high intensity within a sealed quartz tube. The quartz tube is mounted within a standard T-10 bulb (5½x1½ in.) equipped with standard screw base.





Recorder-Controller

Bristol Co., Waterbury, Conn., has announced a series of pneumatic-controllers, known as the Ampliset free-vane controllers, for automatically controlling temperature, time-temperature, flow, liquid level, pressure, time-pressure, and humidity. The Ampliset principle has also been combined with the Metameter (a system of telemetering developed by the company) for the remote control of steam pressure and gas pressure. In the Ampliset, certain features of field adjustability have been added to the free-vane system, whereby its sensitivity can be changed by means of a small screwdriver to fit the lag peculiarities of the process on which it is used.

Heating Control

Radiostat control for use in conjunction with the company's automatic, underfeed stoker is announced by Link-Belt Co., 307 N. Michigan Ave., Chicago. A sensitive control element is located on the north, outside wall of the building, and outside temperature governs the heating. Once the controls are set, the master control is locked and cannot be tampered with. The electronic tubes are sensitive to a change of 1° and there are no moving parts in the control instrument. The company states that steam savings of 15% or more are possible.

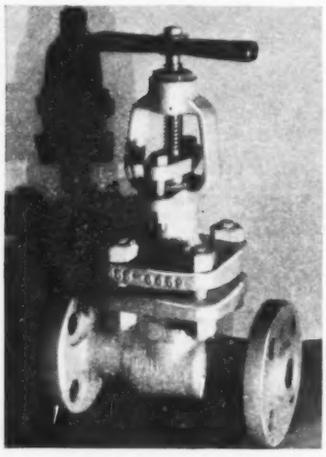
Hand-Aspirated Psychrometer

A psychrometer in which the necessary aspiration over the bulbs is induced by a jet of air applied from a hand pump has been developed by Julien P. Friez & Sons, Inc., Baltimore, Md. Pumping on the hand pump inflates a flexible reservoir, which evens out the impulses of the pumping and provides a supply of air to a nozzle, which is placed in a venturi tube. The action of this jet of air in the venturi tube is to draw secondary air from the outside across the wet and dry thermometer bulbs.

The cover of the small chamber in which the bulbs are inclosed may be opened to facilitate the application of water to the wet bulb. One of the features stressed by the manufacturer is that accurate results can be obtained without special skill.

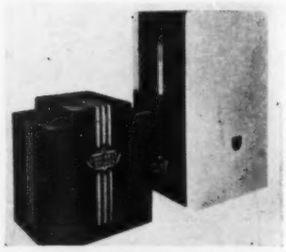
Line of Globe Valves

An improved line of forged-steel globe valves has been announced by Hancock Valve Division of Consolidated Ashcroft Hancock Co., Bridgeport, Conn. The valves are made in either cone or plug type, and the valve-seat ring and disk are made of heat-treated stainless steel. The manufacturer features: all parts of steel for safety against fire; long condensation chamber protects life of packing; all wearing parts renewable; seat ring can be removed with a standard hex wrench; ease of packing in service because the gland nuts come off completely, allowing finger room, and there is a relief plug to drain the condensation chamber when repacking.



Automatic Coal Burner

Improvements in appearance, the automatic controls, and the burning head, which provide for more efficient and economical operation, are featured in the new line of automatic coal burners placed on the market by Link-Belt Co., 307 N. Michigan Ave., Chicago. The hopper, motor, transmission, and fan are inclosed in a steel case. Commercial-size stokers are made up to 300 hp. and shear-pin alarms are available.

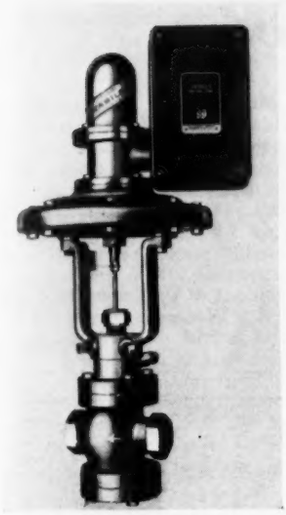


Automatic Pressure Compensator

To prevent errors due to the static pressure of the flow influencing the reading when measuring compressible fluids, Foxboro Co., Foxboro, Mass., has developed an automatic pressure compensator for Foxboro flow meters. The device consists of a spiral pressure tube connected to a lever. As the line pressure changes, the spiral adjusts the multiplication of the linkage between the float and the pen arm. This is not an additive correction, but a percentage correction; the linear amount of correction differs at different points on the chart and is calibrated to fit the flow formula of the meter. It is stated that a continuous, instantaneous, and accurate compensation for pressure changes is thus obtained automatically, and that the instrument is sensitive to, and will correct, the position of the flow pen for a change in pressure as small as 0.1%.

Control-Valve Accessory

An accessory for air-operated control valves, the Vernier Valvactor, developed to eliminate valve sticking and to assure hair-line valve positioning, is the latest addition to the line of Foxboro Co., Foxboro, Mass. This device enables throttling-type, air-operated control instruments to make small, gradual adjustments of the control-valve position, regardless of friction or hysteresis. It is stated that the air from the control instrument need change as little as 0.5 in. of water to cause a corrective positioning of the valve and

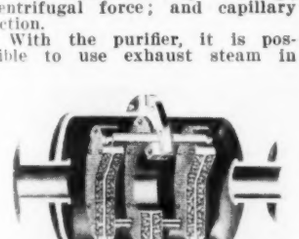


force the stem to take a position within 0.001 in. of the previous one. The instrument is particularly suited for use where the valve-stem packing must be very tight to prevent leakage, where the fluids are viscous or contain solids, or wherever there is danger of valve friction developing. The unit is mounted in a cast-aluminum case and is weatherproof.

Exhaust Purifier

Morehead Mfg. Co., 4895 Grand River Ave., Detroit, Mich., has announced a purifier and dryer for exhaust steam, air, and gases. Among the treatments to which the steam is subjected are: sudden reduction in velocity; sudden deflection by baffling; centrifugal force; and capillary action.

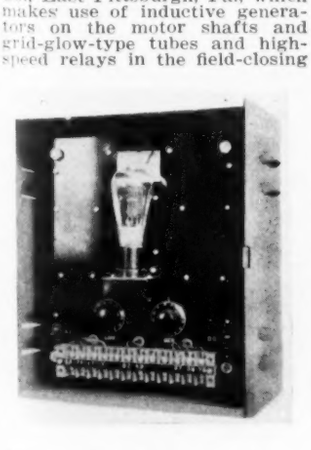
With the purifier, it is possible to use exhaust steam in



heaters, dryers, cooking kettles, dry cans, etc. Likewise, the clean steam will yield a soft condensate for boiler feeding.

Angle Switching for Synchronous Motors

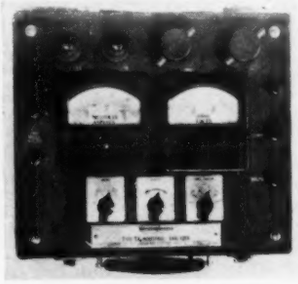
Speedy and precise synchronizing is claimed for the type of angle switching developed by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., which makes use of inductive generators on the motor shafts and grid-glow-type tubes and high-speed relays in the field-closing



circuit. The equipment can be used in conjunction with synchronous-motor control of the standard type. The control functions in the ordinary manner up to the point of applying the excitation voltage. Instead of closing the field contactors at that point, the high-speed synchronizing equipment is energized. This in turn applies the excitation to the motor the first time the rotors of the two machines are in the correct angular position relative to each other.

Current Analyzer

A self-contained industrial analyzer for making practically any type of d-c. voltage, current or resistance test, with minimum connections, is announced by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The unit is particularly suited for testing industrial motors and controls, and consists of an ammeter and a volt-ohmmeter with suitable shunts, multipliers, and range-changing switches all mounted in a compact case ready to use.



Business News

Commercial Investment Trust Corp. set new high record for volume of business and earnings for any half-year period in its history, when for the six months ended June 30 consolidated net earnings available for dividends were $9,757,387 compared with $7,256,517 for the corresponding period last year. After dividends on the outstanding preference stocks, there remained available for dividends on the common stock $8,964,819, equivalent to $3.16 per share on 2,836,923 shares outstanding in the hands of the public June 30, 1936, after giving effect to distribution of a 20% stock dividend May 28. This compares with $6,891,188, equivalent to $2.93 per share on 2,353,292 shares outstanding with the public on June 30, 1935. The deferred income, being that portion of charges not included in previous earnings available for future gross earnings, amounted to $21,568,452 as compared with $14,438,561 a year ago.

Emmons Loom Harness Co., Lawrence, Mass., has added Herbert Booth, of Birmingham, Ala., to its southern sales force. He will cover Alabama, Georgia Louisiana, Mississippi and Oklahoma, selling the complete Emmons line which consists of cotton and mail-eye harness, flat steel heddles, metal and pitch-band reeds, Wardwell loop and doll pickers.

J. F. Chronley Mfg. Co., has moved to larger quarters at 407 Pine St., Providence, R. I.

A. C. Lawrence Leather Co., Peabody, Mass., has moved its New York office to 180 Madison Ave.

Foxboro Co., Foxboro, Mass., has appointed G. M. Basford Co., New York, as advertising and marketing counsel.

Norma - Hoffman Bearings Corp., Stamford, Conn., is celebrating its 25th birthday.

Bausch & Lomb Optical Co., Rochester, N. Y., has moved its New York office to 30 Rockefeller Plaza.

Sherwin-Williams Co., New York, has arranged to give all hourly-wage employees vacations with pay. Those who have been with the company one year will receive one week's vacation with pay and those who have been there five years will receive two weeks.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has acquired a plant at Lima, Ohio, and will transfer there the manufacture of small motors now carried on at Springfield, Mass.

Celluloid Corp., New York, announces the following changes in its sales organization: Harry F. Eels appointed asst. director of sales of the sheet, rod and tube division; David S. Hopping appointed asst. director of sales of the packaging division: S. S. Bareford appointed special sales representative: Edward H. Miller has succeeded Mr. Eels with the title of credit manager; while J. H. Tunison succeeds Mr. Miller as asst. credit manager.

Reeves Pulley Co. announces that W. Clark Erwin, a recent engineering graduate of N. C. State College has become associated with that firm, and will begin his work in the shops at Columbus, Ind. He is a nephew of David Clark, editor of *Textile Bulletin*, and also a nephew of the late W. A. Erwin, president of Erwin Cotton Mills Co., Durham, N. C.

Parks-Cramer Co., Fitchburg, Mass., has transferred Wesley J. Buck, salesman, from the New England territory to the Atlanta office, where he will be assistant to John Porter.

John P. Maguire & Co., New York, have elected E. Stanley Klein, formerly with Amos Parrish & Co., as vice-president of the company. Mr. Klein directed the manufacturing division of Parrish & Co. and is well known in that field.

Veeder-Root Co. announce that Edwin Howard, southern manager, has been elected chairman of the Associated Members Division of the Southern Textile Association at its recent convention.

Southern Dyestuff Corp., Charlotte, N. C., has bought the properties of the new Southern Chemical Corp., near Mt. Holly, N. C., which it will operate in the future. All assets, liabilities and personnel of the company were acquired by its successor.

Herman Products, Inc., is being chartered in Allentown, Pa., to manufacture and deal in chemicals and textile dye-stuffs. Raymond F. Smith, local attorney, represents the concern.

Russell Textile Machinery Co., Fall River Mass., has been organized with capital of 300 shares of common stock, no par value, to manufacture and deal in textile mill equipment. Patrick H. Harrington, 56 North Main St., Fall River, is president and treasurer.

The Philadelphia Textile Supply & Mfg. Co., has been established at 216 West Dauphin St., Philadelphia, Pa., under the management of Joseph D. Reiley.

Gastonia (N.C.) Spindle, Roller, Flyer and Brush Co.'s new building has been entirely completed, and the different departments of the company have been installed.

Tolhurst Machine Works, Green Island, N. Y., a division of the American Machine & Metals Manufacturing Corp., plans to move to East Moline, Ill., late in August.

Canadian Industries, Ltd., Shawinigan Falls, Que., have commenced the erection of a plant for the manufacture of trichlorethylene.

Steel Heddle Mfg. Co., of Philadelphia and elsewhere, announce that William Dugan, an employee in the frame department, is one of the champions representing this country in the Olympics in Germany. Dugan is 23 years old. He is a U. S. entry with John Hauser in the Senior Double Shell.

Richards Textile Engraving Co., Inc., Greenville, S. C., has been chartered. The concern is capitalized at $5,000, and proposes to do a general textile engraving business.

Crescent Corp., Fall River, Mass., distributors of textile machinery and allied products, has opened offices at 1016 Johnston Building, Charlotte, N. C., with James A. Connell, as Southern sales manager. Mr. Connell was formerly associated with the Southern Spindle & Flyer Co., Charlotte.

Metallizing Co. of America, 1218 Long Beach Ave., Los Angeles, Cal., has announced the opening of a branch office at 407 Call Bldg., San Francisco.

Andrew Dingwall, 101 Maiden Lane, New York, consulting chemist, announces that Gordon F. Macnaughton, formerly with Herrick-Voigt Chemical Corp., is now associated with him.

Sandoz Chemical Works, Inc., 61 Van Dam St., New York, has announced that Dr. J. E. Meili is now associated with the company in the capacity of technical adviser and demonstrator. Dr. Meili has been associated with the textile industry for 30 years, specializing in the dyeing and printing of silk, acetate, and rayon.

Leon V. Quigley, 730 Fifth Ave., New York, public relations counsel, has announced that Miss Harriet B. Meyer is now associated with the firm.

Cowan Machine Co., Inc., has incorporated to manufacture textile machinery with a capital of $50,000. John R. Bindloss, Joseph F. Joseph, Samuel E. Stewart, Jr., and William T. Veal, all of Stonington, Conn., are incorporators.

Southern Textile Engraving Co., Columbia, S. C., capitalized at $10,000, has been chartered to produce engraved rollers for the printing of textiles. Officers: Louis Long, president; Rachel Long, secretary-treasurer.

Dave Jones has been appointed to represent **Atlanta Harness & Reed Co.,** Atlanta, Ga., in North and South Carolia and Virginia, with headquarters at Greenville, S. C. Mr. Jones was formerly connected with Carolina and Industrial Products; prior to that with Judson Mills and Patterson Mills Co.

Brown Co., Portland, Me., has shipped 3,000 tons of Solka on Japanese liners to the Orient. Alvaro Chaves, manager of the Foreign Department of the Brown Co. expects that 20,000 tons of Solka will be shipped this year to Japan, where it is said to be used in the manufacture of rayon.

American Aniline Products, Inc., have moved their Philadelphia Branch to 210 North 13th Street, Philadelphia, Pa. Complete stocks will be maintained.

Cincinnati Rubber Mfg. Co., Cincinnati, has let contract for a 80x50 ft. building.

Egmont Arens announces the opening of offices as industrial design consultant at 420 Lexington Ave., New York.

Saylors & Massie, Sparta, Ga., announce the completion of plans for construction of a plant to manufacture shuttles.

Seydell-Wooley Co., Atlanta, Ga., manufacturers of textile chemicals, announces plans to enlarge its plant considerably.

Monsanto Chemical Co., St. Louis, Mo., has announced that contracts had been entered into, which provide for its acquisition of Thomas & Hochwalt Laboratories of Dayton, Ohio, and its subsidiary, the Dayton Synthetic Chemicals, Inc. Monsanto thus acquires the only outstanding minority interest in its controlled subsidiary, Monsanto Petroleum Chemicals, Inc.

THE PERSONAL PAGE

John Wells Farley has been elected chairman of the board of directors of the Nashua Mfg. Co., Nashua, N. H., succeeding the late Walter C. Baylies. Mr. Farley has been prominent in Boston legal, business, newspaper, and public welfare activities for many years. He is a member of the law firm of Herrick, Smith, Donald & Farley, Boston.

A. S. Neilson, formerly treasurer of Francis Willey & Co., Inc., Boston, has been elected president of the concern. **Kenneth W. Marriner** has been elected vice-president and **W. R. Bullard** treasurer.

Harry C. Templeton has been appointed general manager of American Woolen Co. Mr. Templeton has been agent of Assabet Mills of the company, Maynard, Mass.

William W. Rawlinson, agent of Suffolk Mills of Nashua Mfg. Co. at Lowell until the plant was closed early this year, and later co-superintendent of Nashua (N. H.) Mills of the company, joined Pepperell Mfg. Co., Biddeford, Me., on July 1 and is now in charge of the blanket division. **James R. Milliken** has been made assistant superintendent of Nashua Mills.

R. M. Felton has been appointed superintendent of the California Cotton Mill Co's. plant at Selma, Ala., succeeding **W. R. Barnett,** who was transferred to California.

Norman Simpson has been appointed manager of Roane Textile Corp., Rockwood, Tenn., succeeding **H. O. Edgar,** resigned.

J. F. Coghill, manager of Thread Mills division of Marshall Field & Co. which was sold to Threads Inc., has been appointed vice-president and manager of Thread Mills, Inc., a subsidiary.

S. Scott Stewart and **Charles W. Carvin** have been placed in charge of sales of Clifton Yarn Mills, Clifton Heights, Pa., and will make their headquarters at 114 East 32nd St., New York.

L. J. Wehbring has resigned as secretary and treasurer of Susquehanna Silk Mills effective Oct. 1. He will be succeeded by **E. Frick,** present chief accountant for the company.

T. W. Price has become general manager of Barrow Mfg. Co. He formerly held a similar position with Etowah Mfg. Co., Canton, Ga.

Paolino Gerli, of E. Gerli & Co., silk importers, and president of the International Silk Guild, is on a business trip to Europe. It is reported Mr. Gerli will meet Italian silk authorities to discuss plans for shipping Italian silk here.

John F. Bannon has resigned as manager of Lincoln Bleachery & Dye Works, Lonsdale, R. I.

Ray A. Butler has been promoted to head of the industrial engineering division of Carolina Cotton & Woolen Mills Co. division of Marshall Field & Co., and **Charles W. Folds** has been named assistant to **Luther Hodges,** head of the manufacturing activities.

Earle E. Swennson, official of Du Pont Rayon Co., Old Hickory, Tenn., has been transferred to the Spruance plant near Richmond, Va., where he will act as manufacturing superintendent.

Meyer Jasper, formerly connected with the Nieber Mills, Inc., Worcester, Mass., will be superintendent and general manager of the Worcester Woolen Mills, Leicester, Mass.

William M. Vermilye, chairman of the board of Susquehanna Silk Mills, New York, has been elected president of that company and will fill both posts.

N. H. Welch has resigned as superintendent of Florence Mills, Forest City, N. C.

Henry Davis, with Bethlehem Knitting Mills for the last sixteen years as manager and production man, has been appointed production man for Peerless Sport Apparel, New York.

Edward Goedeker, assistant department superintendent of General Hosiery Co., Fort Wayne, Ind., has been named mill superintendent to succeed **O. H. Stiegler,** who retired after 43 years in the knitting industry.

Fred L. Smyre, Jr., of Gastonia, N. C., who recently completed a course in business administration at Harvard University, has joined the Locke Cotton Mills, Concord, N. C. He is the son of **Fred L. Smyre, Sr.,** president of A. M. Smyre Mfg. Co., Ranlo, N. C.

W. R. Barnette, formerly superintendent of Sunset Mills plant of California Cotton Mills Co., Selma, Ala., has been transferred to the main plant of the company at Oakland, Cal.

Max Wagner is now superintendent of Camden (Me.) Woolen Co.

George C. Craven, formerly with Duplan Silk Corp. has been put in charge of sales for Cetwick Silk Mills, Inc., Asheboro, N. C., succeeding **William A. Underwood,** resigned.

William Hall has resigned as superintendent of Putnam Finishing Co., Mechanicsville, Conn.

Max Yankauer, first vice-president and treasurer of Mill Factors Corp., New York, textile factors, has been elected president of that company.

Paul H. Hass, formerly with United Piece Dye Works, has assumed charge of the New York sales office and sales for the Lyons Dyeing & Finishing Co., Fall River, Mass.

Edward A. Haggenmuller, sales manager, rug division, Artloom Corp., New York, has resigned.

Textile Calendar

American Society of Mechanical Engineers, annual meeting, New York, Nov. 30 to Dec. 4, 1936.

National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Nov. 30 to Dec. 5, 1936.

American Association of Textile Chemists & Colorists, annual meeting. Providence, R. I., Dec. 4 and 5, 1936.

Twelfth Southern Textile Exposition, Textile Hall, Greenville, S. C., April 5 to 10, 1937.

Chas. M. McLeod will be president of the Consolidated Textile Corp., New York, following, its reorganization, according to reports. **Frederick K. Rupprecht,** president since the firm was formed in 1919, is planning to enter business on his own account.

Otto Froelicher, treasurer of Schwarzenbach Huber Co., has been elected first vice-president of that company, succeeding **S. A. Walser,** resigned. Mr. Froelicher also retains his previous post. **Ernest Glaesel** was elected second vice-president and general manager. Dr. **Alfred Schwarzenbach** continues as president, **George W. Betts, Jr.,** as secretary and general counsel and **Chas. A. Knisel** as assistant secretary and assistant treasurer.

Chester Bassett, Jr., well known rayon executive, has resigned as assistant sales manager of the American Bemberg Corp. Mr. Bassett has been in the rayon industry for a number of years, having previously been associated with the Viscose Co. He was once president of the Rayon Institute of America.

Seymour S. Golden, head of the rayon department of M. Lowenstein & Sons has resigned to form his own converting company under the name, Seymour S. Golden & Co., with headquarters in New York.

Gordon Heddell, president of the Association of Chicago Dry Goods Commissionmen, will soon take charge of the Los Angeles office of Pacific Mills, directing cotton goods sales on the coast. **C. W. Conarroe** will manage sales for the bleached goods, drapery and curtains division on the coast.

Frank Wilson, general manager of the Fieldale, Va., unit of the Carolina Cotton & Woolen Mills Co., textile division of Marshall Field & Co., has been appointed manager also of that company's two Virginia units, the Puritan Mills and the Athena Mills of Roanoke, Va.

C. M. Hall has assumed charge of a new office opened by Chicopee Sales Corp. at St. Louis. He was formerly with Amoskeag Mfg. Co. and Pepperell Mfg. Co.

Carlton Hotchkiss, formerly with Dumari Textile Co., has joined the sales staff of Everfast Fabrics, New York.

Frederick Kuehndorf, formerly executive manager of the converting department of Stehli Silks Corp., has joined Galey & Lord, Inc., New York.

James P. Margeson, Jr., assistant general manager, manufacturing division of Marshall Field & Co., Chicago, has been promoted to the post of general manager, it was announced July 30 by Frederick D. Corley, president.

W. A. Hunt, formerly superintendent of the Eastman Cotton Mills, Eastman, Ga., is now superintendent of the Pickett Cotton Mills, High Point, N. C., succeeding **T. B. Moore,** who recently resigned to go with the Norwood (N.C.) Mfg. Co.

T. H. Burkhardt, vice-president of Burlington Mills, Greensboro, N. C., and for the last six years in charge of mills and research work, has resigned.

H. Sander has resigned his sales post with Industrial Rayon Corp. to join the executive staff of Palisades Mills, Inc., New York, where he will be actively in charge of sales.

William Muir, general superintendent, Cleveland (O.) Worsted Co., has resigned.

C. A. Cannon, president, Cannon Mills, Kannapolis, N. C., has been appointed by Governor Ehringhaus to a commission which will study highway refund claims.

Leon Lowenstein has been elected president of M. Lowenstein & Sons, New York. Other new officers are: **Howard Viet,** vice-president; **Archie O. Joslin,** treasurer; **Edward Goldberger,** secretary; **Milton Silverman,** assistant treasurer; and **Eric Kath,** comptroller.

Arthur Jones is now superintendent of the Waterloo (N. Y.) Woolen Mills.

Louis Hennis has succeeded **R. H. Gaddy,** in charge of manufacturing operations at Magnet Knitting Mills, Clinton, Tenn.

John Berrien has been named to assist **Harry Hodges** in merchandising and handling the Lindale and Opelika divisions of the Pepperell Mfg. Co.

Alfred R. Macormac, formerly with the textile chemistry department of the Clemson College Textile School, recently completed work at the University of North Carolina for the Ph. D. degree. The title of Dr. Macormac's thesis was "Utilization of Whole Cotton Plant (for oil and alpha-cellulose)," the work being done under the direction of Dr. Frank K. Cameron. Dr. Macormac also was made a full member of Sigma Xi.

C. W. Bigelow, of Bigelow & Gifford, Boston, has accepted the post of secretary of the National Wool Trade Association. Mr. Bigelow has had extended experience in the wool market.

O. W. Clarke, formerly with the linen finishing division of Umans Bros., has taken charge of the fast color work of the Martin Dyeing & Finishing Co., at Bridgeton, N. J. He will also have charge of chemical research work.

Dr. Carl Schlatter, consulting engineer for S. Slater & Sons, Webster, Mass., and the Stevens Linen Co., Dudley, Mass., has gone to Europe to study textile conditions. He will spend considerable time at the University of Geneva.

George McClellon, Tom Joyner, Ray Pestell and **Jim Pearson,** officials of the DuPont Rayon Co., plant at Old Hickory, Tenn., were given a dinner there recently incident to their departure for the Argentine where they will assume new duties in the DuPont plant there.

Alexander Morrison, of Shawsheen Village, Mass. has been appointed chief chemist for the American Woolen Co., succeeding the late **Claxton Munro.**

Charles Strickler, formerly with Louis F. Hall & Co., has joined the staff of Scheuer & Co., New York. He will contact the curtain cloth converting trade.

B. F. Underwood succeeds **C. M. Moore** as superintendent at the Piedmont (S. C.) Mfg. Co.

J. J. Newton, formerly connected with Martin Dyeing & Finishing Co., Bridgeton, N. J., is now superintendent of Fairforest Finishing Co., Clevedale, S. C., succeeding **Sam Elliott,** who recently resigned to resume a previous connection with Delta Finishing Co., Philadelphia.

John F. Reardon, Jr., general superintendent, Grosvenordale Co., North Grosvenordale, Conn., who resigned June 19 and reconsidered, has now definitely left the company.

Tim S. Cannon, widely known in New England cotton circles, now is associated with the Hazard Cotton Co., Providence, R. I. For many years he was connected with the New Bedford, Mass. office of E. A. Shaw & Co., later transferring to Providence.

C. W. Bendigo, formerly with the Mooresville, N. C., unit of Burlington Mills, has recently been promoted to assist R. A. De Santo, head throwster for the Burlington Mills chain. Mr. Bendigo's headquarters will be at the High Point, N. C., plant.

Archie O. Joslin, treasurer of the Rock Hill, S. C., Printing & Finishing Co., announced July 24, that **Walter T. Jenkins,** had been promoted from assistant manager to manager of the plant, and that he, **(Joslin),** who also had been acting as general manager for a number of years, will give most of his time to the selling organization. Other changes in the plant are: Plant Superintendent **Joseph H. Easley** was promoted to assistant manager; **William H. Greer,** was promoted from assistant superintendent to superintendent; **George Fiendel** chemist, assistant superintendent, and **George Howell,** purchasing agent, was made divisional superintendent.

Textile Mill Bricks Foundation for Jurist

THE BRICKS of a textile mill in Canada were laid some years ago by hands which later held a gavel on the bench of New York's Court of Special Sessions. This judge, now retired, recently visited the spot where he first won a livelihood as a young immigrant to North America. He is Hyman Rayfiel who told his story to Joseph Dolphin, manager of the Marysville (N. B.) cotton mill when the latter took him over the plant.

Judge Rayfiel quit his native Russia because of persecution of Jews and the impoverishment of his father, once a wealthy lumberman. Arriving at St. John, N. B., young Rayfiel found his assets totaled $1.25, and after two days he was absolutely penniless. But opportunity knocked. It was a box car loaded with bricks at St. John. Before the door was closed, the Jewish youth climbed in among the bricks. He did not know whither the bricks were bound, but decided there was construction there, so he was on his way.

The bricks were for a new cotton mill at Marysville. After getting out of the box car, Rayfiel encountered Patrick J. Mooney, who had the cotton mill contract. Rayfiel was unable to speak English or to understand Mr. Mooney, but the contractor recognized the plight of the young immigrant, was host for a meal that hit the right spot and then gave the future judge a job carrying the hod on the cotton mill construction.

He worked until the completion of the contract, and then, through the intercession of Mr. Mooney was given a job in the mill as an apprentice weaver at which he worked for three years. Later he went to Boston and then to New York, where he started his study of the law. He made his debut in a law office on the manipulating end of a broom, as an assistant janitor of a building liberally used by lawyers.

His benefactor, Mr. Mooney was dead when Judge Rayfiel visited St. John, but he called on a son of the contractor there, and they exchanged reminiscences.

Obituary

James D'Olier, aged 67, retired Philadelphia cotton yarn merchant, for many years associated with the cotton yarn house of William D'Olier & Co., which firm later became Franklin D'Olier & Co., died July 28.

Charles A. Robinson, aged 62, formerly selling agent for the Lippitt Woolen Co., died last month in New York after a year's illness. Early in his career he was associated with American Woolen Co., later organizing the Continental Worsted Co.

Durwood B. Hedgpeth, aged 62, formerly secretary of the Holt-Morgan Cotton Mills, Fayetteville, N. C., died there July 28.

Robert T. Fowler, aged 77, retired financial manager and a director of Alexander Smith & Sons Carpet Co., Yonkers, N. Y., died July 11.

Colonel John D. Taylor, aged 76, president of Summerville (Ga.) Cotton Mills and identified with numerous other business enterprises there, died in July.

James McNamee, for many years president of Spa Knitting Co., Ballston, N. Y., died July 16.

Stephen V. Lewis, formerly treasurer of the Bennett Textile Co., Cohoes, N. Y., died recently.

Clyde C. Cobb, aged 55, superintendent of Nicolas Mills, Opelika, Ala., and formerly superintendent of Belton (S. C.) Cotton Mills, died July 21.

A. L. Quinn, aged 65, who was superintendent of Mary Louise Mill, Chesnee, S. C., for more than a quarter of a century, died recently.

J. L. Short, aged 49, for the last 21 years connected with Proximity Mfg. Co., Greensboro, N. C., as yard foreman, died June 30.

C. J. Becker, aged 71, superintendent of dyeing at General Hosiery Co., Inc., Fort Wayne, Ind., died July 14. Mr. Becker came to this country 30 years ago and was formerly dyer at Esmond (R. I.) Mills and Merrill Silk Co., Hornell, N. Y.

Frank Washington, aged 70, president of Washington Hosiery Mills, Nashville, Tenn., died recently.

John V. Best, Sr., aged 73, head of Best Silk Mfg. Co., Pleasantville, N. J., died July 9.

W. Howard Wickes, vice-president of Narragansett Knitting Mills, Inc., Woonsocket, R. I., died July 15.

Clarence N. Brewster, head of the New York office of Botany Worsted Mills, Passaic, N. J., died in New York on July 9.

James A. Cooper, aged 73, for 38 years a salesman and textile expert with Whitin Machine Works, Whitinsville, Mass., died July 7 in Northbridge, Mass.

Frank Graeser, proprietor of Ravenna (Ohio) Yarn Spinning Co., died recently.

John McKenzie Hardison, aged 71, died July 24 after a long illness at the Anson Sanatorium, Wadesboro, N. C. He was secretary and treasurer of the Wade Mfg. Co.

Edward G. Lee, assistant import manager for the American Dyestuff Corp., died July 25 at Palenville, N. Y.

Arthur Ferguson, aged 62, dye and textile expert for the Federal Tariff Commission, died in Washington, D. C.

Shelby S. Fletcher, aged 67, State Senator and president of the Fletcher Mills, Inc., Huntsville, Ga., and Fletcher Cotton Co., died July 26 at his home there.

TEXTILE WORLD'S

Cotton Digest

"THERE IS a strong and fast growing determination to avoid cutting prices below sound market levels."

This statement by Frank Neild, president of the National Association of Cotton Manufacturers, reflects accurately the attitude prevailing in the cotton division of the industry at this writing. It has been recognition of this state of mind that has prompted us to be more optimistic in our editorials recently.

The duration of the spell of common-sense is the real question-mark. Manufacturers have displayed the same trait previously, only to lose it when the trade trend shifted. We recall particularly the sudden firmness of just a year ago, followed by degeneration of profit margins later in the fall. It's relatively easy to resist price-cutting when buying is active; the test comes when dullness returns. The fact that dullness always *does* return doesn't seem to help; manufacturers always register naive surprise at its appearance.

When one of these reactions is met with the same firmness that is shown during periods of activity, then indeed will the industry be going places.—*Editor.*

Foresees "Whale of a Textile Business"

W. D. Anderson, chairman of the board of Bibb Mfg. Co., Macon, Ga., in a recent letter to customers of his company sounds a highly optimistic note. A few extracts from the letter follow:

"It now seems certain that we will have a record-breaking consumption of all cottons by the world this season totalling around 27,000,000 bales as compared with a previous high consumption of 25,778,000 bales. . . .

"While many well-posted authorities have been predicting prices of from 14 to 15¢ per lb., I have not yet been able to work my enthusiasm up to that point. However, I do see great stability in the cotton market, which to those of us who are conservative, is a factor of tremendous importance. We need not be afraid of making a normal investment in our raw materials because of any fear of inventory losses.

"Business conditions are decidedly better all over this country and in every line of business. . . . Taking all the known conditions into consideration I am convinced that we are going to have a whale of a textile business over the next 12 months. I believe this will be true regardless of who is made President in the November elections. Feeling this way, I am more bullish on the price of goods than I am on the price of cotton."

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U. S. Liquidates Pool Cotton Holdings

Secretary of Agriculture Wallace announced in Washington, July 29, that his department had just banked $56,000,000 with the Treasury Department as result of complete liquidation by the Government of both its 1,000,000 bales of spot and 900,000 bales of future cotton holdings. His statement was viewed as confirmation of the Government's reported plan to withdraw entirely from all cotton market activities at the earliest possible moment. The liquidation followed the declaration on July 10 by the Commodity Credit Corp. that 10c and 9c cotton loans, maturing July 31, would not be renewed and that payment would be expected promptly at maturity.

The Secretary further commented that he expected the pool to "break even" on its transactions, which was interpreted as referring only to the administration period of Oscar Johnston, pool manager, who assumed control in August, 1933. The government still controls about 3,000,000 bales involved in the 12c loan but none of this will be offered for sale before Feb. 1, 1937, unless the staple goes to 13½c, or higher.

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Pequot to Sell Own Products

Effective Oct. 1, Pequot Mills of Naumkeag Steam Cotton Co., Salem, Mass., will set up its own selling organization. At present, products are being handled by Parker, Wilder & Co., New York. The main sales offices will be located in the Clarence Whitman & Sons Bldg., 21 East 26th St., New York, and, while the details have not been released, it is presumed that there will be cooperation between the Pequot sales force and the Whitman organization, selling agents for Esmond (R. I.) Mills. Lincoln Baylies, asst. treas. of Pequot, will devote a large part of his time to sales.

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AAA Studies New Uses for Cotton

In addition to promoting the use of cotton fabrics in road construction, AAA is endeavoring to develop other new-use projects which will greatly increase the domestic consumption of cotton, declared Chester A. Davis, AAA administrator, in his report for 1933 to 1935. The projects are being financed with funds provided for under the Farm Act, and are as follows:

1. Wall covering in place of paper.
2. Outer covering for temporary or light structures such as summer cottages and garages.
3. Dressing- and sun-shelters for beaches.

"These suggestions," the report said, "in themselves offer no adequate solution of the problem of disposing of the potential cotton surplus, but it is hoped that they will lead to still more important future developments."

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Trade Rules for Converters Announced

The Federal Trade Commission made public late last month the trade-practice rules it has approved for the cotton converting industry under its trade-practice conference procedure. Application for the conference was made by the Textile Fabrics Association, of New York, said to represent about 75% in point of volume of all integrated producers and converters of cotton and mixed cotton and rayon piece goods. The rules are divided into two parts—Group I prohibiting illegal practices and Group II expressing voluntary undertaking in behalf of fair and ethical standards of business conduct. Group I prohibits the following practices:

1. Secret payment of rebates, refunds, credits, unearned discounts, etc.
2. False or deceptive marking or branding of products.
3. Imitating trademarks, tradenames, etc.
4. Price discrimination contrary to Section 2 of the amended Clayton Act.
5. The use of false or deceptive selling methods or credit terms.
6. Untrue or deceptive statements in advertisements.
7. Defamation of competitors by falsely imputing them to dishonorable conduct, questionable credit standing, inability to perform contracts, etc.
8. Bribing employees of customers or competitors' customers.
9. Attempting to induce by deceptive means the breach of lawful contracts between competitors and their customers.
10. Publishing or circulating false or misleading price quotations.
11. Shipping or delivering products which do not conform to specifications without the consent of the purchaser.
12. The offering or giving of prizes or premiums in connection with sale of products.
13. Selling of regular lines as "closeouts."
14. Withholding from or inserting in the invoice statements which make the invoice a false record.

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Prices and Activity

Key cotton prices of August 1 and a month ago contrasted with those of the last two years follow:

	Aug. 1, 1936	July 1, 1936	Aug. 1, 1935	Aug. 1, 1934
Spot Cotton N. Y.	$12.89	$12.50	$12.00	$13.20
Ditto, high previous mo.	13.65	12.49	12.45	13.35
Ditto, low previous, mo.	12.49	11.77	12.00	12.10
10s hosiery cones	25½	23½	27	29½
10s/2 carded skeins	25½	24	28	29½
20s/2 carded peeler warps	29½	26½	31	33
60s/2 combed peeler warps	57	55	55	61
60s/2 mercerized cones	68	66	70	73
37 in., 3-yd. drill	8¼	8 1/16	8½	9½
38½-in. 64 x 60s	6	5½	5½	6½
36-in. 4-yd. 56 x 60s	7½	6 15/16	7½	7½
Denim, 2.20s	13	13	14	15½

Statistics of particular interest to cotton manufacturers, showing June operations and the raw material situation:

Spindle activity	111.0% capacity, or 7,319,892,450 spindle hours
Cotton consumed	556,323 bales
Cotton exported	287,336 bales
Cotton imported	12,462 bales

May operations for comparison:

Spindle activity	105.2% capacity, or 6,893,604,077 spindle hours
Cotton consumed	530,799 bales
Cotton exported	351,734 bales
Cotton imported	19,891 bales

Market Excellent

July was one of the most fundamentally sound months the gray cloth market has seen in a long time. There were several price advances and a large volume of goods was sold. The cotton shortage, low acreage report, Government purchases and consumer buying all tended to stabilize conditions and cause increased interest in all types of goods. A substantially similar strength was manifest in the yarn market. Price advances were particularly noticeable in combed yarns. Mercerizers also raised prices, some 1 to 3c. lb. on 2-ply combed peeler natural yarns. Brokers in textile securities report excellent business.

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Drying Cotton Before Ginning Advantageous

Employing a dryer of its own invention, the U. S. Department of Agriculture has now proved, it announces, that drying cotton previous to ginning affords the following benefits: smoother ginning, less damage to fiber, higher grade (from one-third to one, except where original moisture content is particularly low), earlier picking of wet cotton, use of cotton otherwise unsuitable, less choking of gins, increased ginning production, and sometimes better germination of seeds. The improvement in grade is sometimes partly due to brighter color and reduced leaf. Making due allowance for the loss of weight, it is estimated that drying can increase the value of cotton as much as $2 to $7 per bale at a cost of only 20 to 50c. per bale.

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Efficiency of WPA Purchases Praised

Purchase and delivery to relief workrooms of approximately 143,000,000 yd. cotton goods by the Work Progress Administration without the slightest confusion or trade upset is said by many interested persons to be one of the smoothest jobs yet performed by the present Administration.

An analysis of the year's activities shows that the average price of about 145,000,000 yd. of cotton textiles, valued at $15,200,000, was 10.62 c. yd. The original estimated cost was 12.8 c. yd. The number of basic fabric types purchased was 40. Cotton producing States received approximately 82% of the awards and non-producing States 18%.

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Industry Notes

World Carryover of American cotton, that is, the world stock on Aug. 1, was approximately 7,106,000 bales, according to a preliminary estimate of the New York Cotton Exchange Service. This compares with 9,041,000 bales last year, 10,701,000 two years ago, and a maximum, in 1932, of 13,263,000 bales.

Robinson Yarn Mill, Gastonia and Dallas, N. C., and Borden Mfg. Co., Goldsboro, N. C., have appointed Klumpp-Glynn & Co. of Philadelphia as their exclusive representatives. The first mentioned spins 14s to 60s and the second 8s to 30s.

Southeastern Cottons, Inc., has been made the sole selling agent for Guadalupe Valley Cotton Mills, Cuero, Tex., manufacturers of single- and double-filling duck.

Southern Mercerizing Co. and **China Grove Cotton Mills** have appointed J. E. McAlister, Chattanooga, Tenn., sales representative.

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Cotton Mill News

Dwight Mfg. Co., Alabama City, Ala., has let general contract to Batson-Cook Co., West Point, Ga., for new one and two-story addition, 80x280 ft., to be used for expansion in slasher division, costing $100,000.

Florence (Ala.) **Cotton Mills** is undergoing a modernization program which costs more than $100,000. About $10,000 is being spent on buildings and the remainder on replacing obsolete machinery.

Pocomoke Textiles, Inc., Pocomoke City, Md., recently established, plans to enlarge its hosiery mill.

Boger Crawford Spinning Mills, Boger City, N. C., has completed the addition to the plant, which provides for 16,000 additional spindles.

Trenton Cotton Mills, Gastonia, N. C., are constructing an addition which will house the picker department of the mills.

Borden Mfg. Co., Goldsboro, N. C., has begun expansion and improvements in mill, including replacements in equipment. Entire project will cost about $65,000.

Carolina Webbing Co., Greensboro, N. C., recently organized, has let general contract to Charles W. Angle Co., North Carolina Bank Bldg., Greensboro, for new two-story mill on Andrews St., 75x150 ft., estimated to cost $75,000, with equipment.

High Falls (N. C.) **Mills, Inc.,** has completed improvements and renovations, placing the mill in condition for the manufacture of yarn. This property was purchased recently by John M. Presnell, H. C. Jones, Arthur Ross and E. M. Kearns.

Eastern Mfg. Co., Selma, N. C., has let general contract to Fiske-Carter Construction Co., Greenville, S. C., for new one-story addition to mill, reported to cost $25,000, with equipment.

Hart Cotton Mills, which recently merged with Fountain Cotton Mills, Tarboro, N. C., is installing two new Barber-Colman spoolers and warpers, in addition to much other machinery.

Erwin Cotton Mills, West Durham, N. C., have installed 1,500 midget feelers and thread cutters.

Virginia Towel Mills, Philadelphia, Pa., are considering construction of new mill on site soon to be selected, said to be near present plant. Cost estimated at $50,000, including equipment.

Hampton Spinning Mills, Clover, S. C., are installing 10,000 additional spindles, work on same to be completed by Oct. 1, bringing the total number to 43,000 spindles.

Pacific Mills, Lyman, S. C., have awarded general contract to C. M. Guest & Son, Anderson, S. C., for new three-story addition, to be used in part for storage and distributing service, costing $80,000 with equipment. Contract for electrical installation has been let to the Walker Electric Co., Atlanta, Ga.

Clifton Mfg. Co., Plant No. 2, near Spartanburg, S. C., is undergoing extensive machinery additions, according to J. Choice Evins, president. Frames for filling and long-draft spinning are being added. New steel fences are being erected around Plants Nos. 1 and 2.

Canadian Cottons Ltd. is installing 20 new Draper looms in their Canada mill at Cornwall, Ont. The looms are 66 inches wide.

Cotton Financial Notes

Falls Co., Norwich, Conn., is selling miscellaneous property, including 12 cottages, 12 two-family houses, etc.

Winville Corp., newly organized at Lawrenceville, Ga., recently took over operation of Lawrenceville Cotton Mill formerly a branch of Barrow County Cotton Mills.

Pacific Mills, Boston, Mass., reports profit of $59,538 for first half of 1936, after full depreciation of $589,054 and special allowance of $471,830 for flood damage at Lawrence last March.

Kendall Co. reports $288,445 profit for first 24 weeks of 1936; gain of 173% over 1935.

Hanover Mfg. Co., Inc., Fall River, Mass., has been formed with capital of $25,000, to manufacture cotton goods and plans early operations in local mill. Norman C. Small, 38 Hillside St., Fall River, is president and treasurer.

Keene (N. H.) **Artistic Narrow Web Co.** was sold at auction late in July for about $4,000 according to report. Wovencraft Art Guild bought the 50 label looms.

Consolidated Textile Corp., New York, N. Y., plans expansion and modernization at different mills in connection with reorganization of company, now in progress. It is proposed to dispose of certain of the mills of the company and concentrate production at Lynchburg, Va., Lafayette, Ga., and Shelby, N. C., where about $400,000 will be expended. Hearing is set for Aug. 24.

Threads, Inc., Gastonia, N. C., have acquired thread mill units of Marshall Field & Co., Chicago, Ill., at Monticello, Ind., known as Thread Mills, and will take over at once for new branch plant. Present production will be expanded and improvements made in property. New owner has organized The Thread Mills, Inc., under Indiana laws, with capital of $100,000, to take over and operate the property. Jacob Gottlieb is president of both companies.

Icard (N. C.) **Cordage Co.,** a new concern composed largely of New England textile men, has been incorporated and acquired the plant of the Burke Cordage Co. and its predecessor, the Icard Cordage Co. Officers are: Herbert G. Pratt of Boston, Mass., president; Edward S. Pratt of Concord, Mass., vice-president, and William R. Dewey, Jr. of Weston, Mass., secretary-treasurer.

Caswall Cotton Mills, Kinston, N. C., were bid for at $85,000 by bondholders at a resale on July 22.

National Cotton Mills, Lumberton, N. C., was sold last month for the fourth time, this time for $31,525. Pates Supply Co., Pembroke, N. C., made the offer and the sale is expected to be confirmed.

Virginia Towel Mills, Frankford, Philadelphia, Pa., sustained a loss of $30,000 by fire on July 10, which originated in an adjoining lumber yard.

Langley (S. C.) **Cotton Mills Co.,** have secured approval of Federal Court of reorganization plans under Section 77-B of the Bankruptcy Act. The proposal provides that the company property is to be taken over by the Bristol Supply Co., Fall River, Mass., for a reported consideration of about $235,000 or 50% on the bonds.

Riverside & Dan River Cotton Mills' board of directors in session, July 25, declared a $3 a share dividend on the preferred stock payable Aug. 1. This dividend which accrued Jan. 1, 1932, carries 6% interest from the time it was due.

TEXTILE WORLD'S

Wool Digest

ANY profit is better than none, of course, and so woolen and worsted manufacturers will be glad to get confirmation—even though belated—from the Federal Trade Commission that return on their investments during the first six months of 1935 showed an increase over the last six months of 1934. "It better had," would be the comment of any wool manufacturer who remembers what 1934 was like—and who could forget it?

At any rate, the combined spinning and weaving companies reporting for the first half of 1935 had a return of 2.58% on their investment, as against a *loss* of 3.45% for those companies reporting for the last half of 1934.

The report includes, in addition to this cheering news, food for reflection in its estimates of price advances which would be necessary to maintain even that modest rate of profit, if hours were to be further shortened or wages further increased at this time. Having at last emerged from a long, hard siege, the woolen and worsted industry should be nursed along pretty carefully for a while. One of the things *not* recommended for a convalescent industry is too sharp a price advance. Consumer resistance must be guarded against.—*Editor.*

Federation's Demands Analyzed

Arthur Besse, president of the National Association of Wool Manufacturers, in replying to the Secretary of the Woolen and Worsted Federation who on July 1 presented five demands to him, reiterated his stand of two years ago that the association could not represent its members in connection with their individual relations with employees. He further characterized their demand for recognition of local unions as "without merit," pointing out that statements in a Bureau of Labor report for December, 1935, indicated that the U.T.W. represented only 12½% of the workers in the wool textile industry.

A 35-hour work week, he pointed out, would be lower than that provided for by the Government Contracts bill and would increase costs without any corresponding benefit to anyone. Mr. Besse called attention to the fact that a 35-hour week with a 20% wage increase would necessitate an increase in direct hourly rates of 37%. Such an increase, he stated, would still further accelerate the growth of importations from Great Britain and Japan which are already threatening domestic manufacturers and would cause a further increase in unemployment. Mr. Besse gave the present average hourly wage in the industry as 49.9c and said that it had fluctuated over a narrow range between 48c and 50c since the N.R.A. Code was first adopted. This average wage is substantially higher than that paid in most other branches of the textile industry, he said.

Mr. Besse commented on the demand for standardization of machine load by saying that the many variables involved made standardization impractical, a conclusion which was reached by the Wool Textile Work Assignment Board which made its report early in 1935. Limitation of production through a limitation of so called "productive" machinery was termed by Mr. Besse as open to question on both practical and legal grounds.

There has been nothing to indicate that these demands of the Woolen and Worsted Workers were in any way connected with the drive to organize the steel workers into an industrial union now being headed by John L. Lewis, although officers of the Textile Union are supporting Mr. Lewis in his fight with the American Federation of Labor. Mr. Besse characterized the five demands of the wool and worsted union officials as insincere and asserted that the officials were not solicitous for the welfare of employees in the industry but were merely putting on a membership drive to secure more dues-paying members.

A succeeding letter dated July 21 from the Federation reiterated its determination for "bettering the working conditions of our members" and was replied to on July 23 by Mr. Besse urging that the Federation confine its attention to specific cases, rather than proceed with an unmerited attack on the industry at large.

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Imports of Wool Goods Rising

Figures covering importations of wool products released by the Department of Commerce substantiate the contention of the National Association of Wool Manufacturers that the increase in the imports of wool and worsted piece goods, woolen overcoatings and wool blankets is continuing and constitutes a serious threat to domestic manufacturers.

Total imports of woven fabrics for the first five months of 1936 amounted to 2,944,000 sq. yd. against 2,128,000 in 1935, an increase of over 38%.

While imports of overcoatings are ordinarily heaviest in the middle and latter part of the year, the figures for the early months give an index of what may be expected of the months just ahead. Imports of overcoatings for the first five months of the last three years follow: 1934, 75,000 sq. yd.; 1935, 194,000; 1936, 375,000. The last figure is considerably greater than the imports for the entire year 1934 (327,000 sq. yd.) and shows an increase over the first five months of 1935 of 92%.

Imports of blankets, robes, and steamer rugs show the greatest percentage increase. Total imports for the first five months of 1936 amount to 199,000 lb. against 35,000 for the like period of 1935 and 29,000 for 1934.

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Trading Quiet Despite Tropical Opening

Wool goods selling on the whole in July was quiet. Men's wear lines were in a between-seasons lull except for tropicals which opened for 1937 at perhaps 7½% over a year ago but in some cases slightly less than recently current figures. Clothiers with a winter-resort trade were the only buyers who showed much interest. Other spring men's wear lines are available for 1937 at a cut of perhaps 5% from recent levels but substantially higher than a year ago.

Women's wear lines for fall are fairly active with interest concentrated in sports coatings of the lower price ranges. Mills which have catered to price in women's wear circles by styling cotton fabrics for this trade are turning to staple rayon with encouraging hope of turning out some attractive and meritorious numbers. As the month closed there were gains reported in the higher priced fabrics for women's wear.

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Prices and Statistics

Key wool prices of July 1 and a month ago, contrasted with the last two years:

	Aug. 1, 1936	July 1, 1936	Aug. 1, 1935	Aug. 1 1934
Fine and fine med. territory	$0.84	$0.84	$0.67	$0.73½
Ohio 3/8s	.38	.38	.31½	.32½
Tops fine 64–66s	1.06	1.08	.94	1.04
average 3/8s	.95	.96	.79	.87½
high 1/4	.88	.90	.70	.80½
Noils, fine	.68	.68	.55	.52
1/4	.53	.54	.42½	.41½
2–40s 60s wstd yarn.	1.52½	1.55	1.37½	1.47½
8020 serge	1.82½	1.95	Not quoted	

Current statistics on wool consumption and mill activity follow, activity percentage based on single 40-hour shift, 5 days per week. May is a 4-week, June a 4-week period.

	June	May
Wool consumed, clean equiv.		
Apparel, wool, lbs	20,076,000	17,292,000
Carpet wool, lbs	7,228,000	7,036,000
Machinery activity		
Looms (50" wide)	93.2%	96.0%
Carpet looms	60.6%	59.8%
Combs	116.0%	89.9%
Worsted spindles	71.5%	71.3%
Woolen spindles	111.5%	112.3%

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Rags Take Up-Turn

In the rag market there has been a brisk rise in price of mixed softs from a low point of 11c in June to 14½c in July with 15c asked in some quarters. As there has been no demand for graded rags commensurate with this spurt in mixed stock, the market slowed down awaiting developments in consuming fields that will be a guide to future values. Mill buying has been below the market.

Narrow Top Market

Wool tops held a narrow market in July without much price change. Spots on the exchange showed a slight bulge at the middle of the month and closed the month at $1.04 after opening it at $1.02½. The near months showed a similar gain of about 1c during July but the more distant months, pivoting around January and February were fractionally lower.

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Wool Holds Price Against Pressure

Wool markets recorded light business in July with manufacturers resisting with some success the efforts of wool dealers to elevate prices. Feeling is that prices are already high enough to discourage some consumer buying and encourage use of substitutes on the part of mills.

Manufacturers are loath to stock up with wool despite some evidence that a moderate scarcity is likely in coming months. They will buy original bag wool on basis of 80c scoured, it is said, but little is available below 83 to 85c.

With general strength in farm products and drought conditions in the Northwest it seems unlikely that any real recession in wool will ensue.

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To Push Wool Blankets for Summer Sales

Ways and means to sell more blankets during summer, through active store promotion of cool wool blankets is the subject of a portfolio entitled, "Blanketing the Summer Market," just released by Associated Wool Industries to blanket buyers, window display managers and advertising managers of retail stores. The campaign is designed to capitalize a summer blanket season and is keyed to five central ideas: Change-over to summer blankets, blankets for wedding gifts, baby blankets, blankets for cottages and summer homes, outdoor blankets for travel, sports, etc. Suggestions in the portfolio include merchandising ideas, window display headlines and copy ideas and selling hints for sales personnel. The portfolio is part of Associated Wool Industries' service to help retailers obtain additional business on merchandise of wool.

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Wool Industry Briefs

American Woolen Co.'s report for first half of 1936 shows net profit of $1,098,182 after deductions including $395,619 for flood damage. Gain over 1935 is 100%.

The carpet industry maintained an exhibit of successful merchandising plans for regular carpet lines at 295 Fifth Ave., New York, during the seasonal opening period in July. The Carpet Institute urged retailers to participate in the nation-wide promotion to be held from Sept. 28 to Oct. 17.

Farr Alpaca Co. will factor all sales made through its recently opened general sales office at 469 Seventh Ave., New York, with the Textile Banking Co.

Gabardines are being promoted for use in winter sport wear, particularly for ski pants.

Federal Trade Commission has issued another profit report covering woolen and worsted companies under date of July 20. It covers the first half of 1935 and shows that all branches of the industry except the dyeing and finishing group reported better returns than for either half of 1934. Spinning firms averaged a return of 1.8% on their textile investment; weaving companies 3.1%; combined spinning and weaving, 2.58%; dyeing and finishing, a loss of 3.43%.

Wool imports, according to Dept. of Commerce, for first half of 1936 show a gain of nearly 150% over those for first half of 1935, being 126,072,000 lb. valued at $25,559,000 against 81,655,000 lb. valued at $10,783,000.

The Frosted Wool Process Co., formerly located in the Lowell (Mass.) Textile Institute, has moved to its new quarters at 10 High St., Boston.

That Bonus Boom—Retailers look forward to increased purchase of men's clothing this fall and winter rather than any immediate up-curve in sales as a result of the billion and a half dollars bonus payment, according to advices received from 150 stores in 29 states in reply to a questionnaire sent to merchandise managers and men's clothing buyers by Associated Wool Industries.

A baseball, we learn, contains 153 yds. of good wool yarn. A major league team uses about 500 dozen balls per season; about 1,000 lbs. of wool per club and then there are lots of baseballs used outside the majors.

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Wool Mill News

Assawaga Co., Inc., Dayville, Conn., has removed equipment from local mill to plant at Hanover, Conn., where production will be carried out in future. Mill at Dayville, heretofore employing about 500 persons, will be discontinued, and about same number of operatives added at new location.

M. T. Stevens & Sons Co., Rockville, Conn., have awarded a general contract to Morton C. Tuttle Co., Boston, Mass., for a 2-story office extension at the Minterburn Mill, and a 2-story and basement dyehouse 50x180 feet, at the American Mill. A. O. Wilson Structural Co., Cambridge, Mass., has the steel contract for the dyehouse job.

Winfield Schuster, East Douglas, Mass., has purchased the former "No. 1" mill in Manchaug and will install machinery.

U. S. Bunting Co., Lowell, Mass., is discontinuing operations permanently at branch mill at Saco, Me., and will remove all equipment, including 36 looms, to mill at Lowell, where operations will be concentrated and expanded in the future.

River Woolens, Inc., Cherry Valley, Mass., closed since the March floods which caused heavy damage, has re-opened. Repairs to the mill property will soon be completed.

Princeton Worsted Mill, Inc., Trenton, N. J., has let general contract to Fowler-Thorne Co., 211 North Montgomery St., Trenton, for new one-story addition to mill.

P. T. Nelson is starting up a small woolen mill at Hood River, Ore. Mr. Nelson comes from Chippewa Falls, Wis.

G. Josephs & Co., Philadelphia, Pa., have completed the removal of equipment to mill at Henry Clay, Wilmington, Del., recently secured under lease, and will begin operations at new location at early date, giving employment to about 60 persons for initial production.

Merion Worsted Mills, West Conshohocken, Pa., have begun operations in a new department for production of woolen fabrics for men's wear, resuming a line of manufacture discontinued a number of years ago. Initial installation comprises 48 automatic looms and accessory equipment.

Staunton (Va.) **Woolen Co.'s** new 2-story mill will be ready for operation Sept. 1.

Rock River Woolen Mills, Janesville, Wis., have let general contract to T. S. Willis, Hayes Block, Janesville, for one-story top addition to present two-story mill, 78x85 ft. Law, Law & Potter, 1 South Pickney St., Madison, Wis., are architects.

Brinton-Peterboro Carpet Co. Ltd., Peterborough, Ont., is erecting an addition to its plant for storage purposes, to be 60x118 ft.

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Wool Financial Notes

Empire Woolen Mills, Long Beach, Calif., have been formed to take over the plant formerly operated by Pioneer Pacific Woolen Mills. Men's and women's fabrics and woolen yarns will be made.

Mianus Woolen Co., Greenwich, Conn., has been leased to H. G. Davenport, Providence, R. I., for use as a dyeing plant.

Lanatin Corp. of Delaware has purchased the Massasoit Mfg. Co. mill, Oakdale, Conn., from the Oakdale Realty Co. of Fall River, Mass., and will operate it in the manufacture of artificial wool, starting probably in September.

Millbrook Woolen Co., Yantic, Conn., announced a wage increase of 1c a yard for weavers, following a conference between employes and management. The increase applies only to two or three-color fillings, with weavers receiving 11c for 20 picks instead of the old rate of 10c. The base rate is 6 mills per pick.

Moderation Mfg. Co., West Buxton, Me., has received assurance of a Federal loan necessary to repair flood damage and resume operations.

Taft Woolen Co., Bellingham, Mass., has suspended operations for an indefinite period.

American Woolen Co., Boston, Mass., has declared a dividend of $1 per share on the preferred stock on account of arrears. The dividend is payable Sept. 15 to stockholders of record Sept. 1.

George H. Gilbert Co. No. 4 Mill, Gilbertville, Mass., has been leased by Isidor Meyer to Woerner & Weisman of New York City, who will operate the plant in the manufacture of worsted yarns.

Worcester (Mass.) **Woolen Mills,** lately formed, have taken over the weave shed formerly occupied by Chappell Woolen Mills in Leicester, Mass. About 50 will be employed in the production of fancy woolens.

Botany Consolidated Mills, Inc., Passaic, N. J., has had its 77B proceedings put over to Sept. 8.

LaFrance Industries, Philadelphia, appealed on July 25 for permission to reorganize under Section 77B. The company alleges shortage of working capital despite a 2 to 1 ratio of assets to liabilities on June 30. Court hearing is set for Aug. 19.

Shelton Looms, owned and operated by Sidney Blumenthal & Co., Inc., has leased the Worcester Textile Co., Inc., mills, Valley Falls, R. I., for a period of two years. Herbert Gregson will operate the mill, which will spin mohair and worsted yarns.

Cherry Brook Worsted Co., Woonsocket, R. I., has had its receivership terminated on a 50% settlement and the assets have been returned to the company.

Prairie du Chien (Wis.) **Woolen Mills Co.** has leased Winona Yarn Mills and the Litchfield Woolen mill to fill rush orders. Limited dyeing and carding capacities necessitated the leasing of equipment out of the city.

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TEXTILE WORLD'S

Rayon & Silk Digest

THE shortage of certain needed types of rayon yarn is far more significant than a temporary trade trend. It reflects, in fact, the basically under-capacitated condition of that field. And it is so long since any branch of the textile industry could be called under-capacitated, that it is pleasant just to sit and roll the term under one's tongue.

Although certain individual plans for expansion are under way, none has come in yet. A man who keeps very close to the statistical picture in rayon told us recently that he estimated an immediate need of 10% increase in capacity.

What the ultimate need will be, no one can tell. This is all part of the story we have been emphasizing in these columns for years: a steadily increasing market for synthetic yarns, the limits of which can not be set. It is going to continue to take a combination of courage and caution, on the part of the producers, if they are to keep pace with the demand and yet avoid the danger of over-capacity. Fortunately, they run their own show, and this is one of the great advantages they have over producers of natural fibers.—*Editor.*

Silk Parade Sept. 21 to 26

The (1936) Silk Parade, an annual nation-wide promotional campaign to quicken retailer and consumer appreciation of silks and silk merchandise will be held during the week of Sept. 21, concluding Sept. 26, under the auspices of the International Silk Guild. The Guild stated that the 1936 Parade would aim to stimulate recognition of silk in three directions, as follows: (1) as symbolizing the new quality movement in merchandising; (2) as an emblem of store prestige; and (3) as the standard of luxury and serviceability in fine fabrics. The Guild has completed plans for widespread distribution to stores of merchandising helps of all kinds, which service will be complemented by a general program embracing displays, publicity, radio talks, fashion shows, etc.

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Silk Prices Up 10c

Lack of adequate supplies helped to hold the raw silk market firm through July, and the four week period from June 22 to July 22 brought an advance of approximately 10c. Demand was light, but even on the small orders importers had difficulty in making spot shipments. Weavers bought sporadically and only to a limited degree. Hosiery knitters have delayed buying for fall production, and silk factors believe these mills will be compelled to cover soon. Whether the expected increase in call from hosiery mills will further strengthen silk is dubious because the new silk crop, due about mid-August may have a weakening effect.

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DuPont Discontinues Quantity Discounts

An unexpected development in the rayon market was the announcement by the DuPont Rayon Co., Aug. 3, that all discounts would be discontinued Sept. 30.

This was tantamount to a 5% price advance. The DuPont Co. said the step was taken to conform to the Robinson-Patman Act forbidding price discrimination. Up to Aug. 11, the American Enka Corp. was the only firm to follow this step. The Viscose Co. stated no action would be taken pending further study of the legal aspects.

On Aug. 11 Celanese Corp. cancelled discounts as of June 19, but instituted a flat 5% discount to all buyers, thus cutting acetate prices.

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Rayon Fabric Prices Up

After several weeks of gradual improvement, prices of rayon staple fabrics have taken an upward trend. On July 18, an advance of ¼c was reported by several firms, subsequently others followed with larger increases. It was estimated at the end of the month that prices were up from ¼ to one cent per yd. on staple fabrics. Both cutters and retailers were covering actively on fabric needs, and in a number of cases found difficulty in getting delivery. Novelties did not reflect the advance.

Interest in the pigmented yarn rayon taffetas has been reviving and some firms look for these taffetas to be as big in fall as they were in spring. This type of construction may be established during the coming season as a permanent addition to the line of staples.

Rayon Fabric Sales

Deliveries of rayon woven goods during June 1936 were slightly below the preceding month, reflecting the usual seasonal lull, according to figures issued July 24 by the National Rayon Weavers' Association. A statement by the association points out that "based on orders taken in July the manufacturers expect a large movement of rayon woven goods for the Fall season." Figures follow:

(1934-100)	May 1936	June 1936
Taffetas, Twills, Linings and Other Staples	218	211
Dress Goods, Novelties, and Other Fancies	102	73
Total	142	121

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Gerli Sees Silk Rise

Discussing the outlook for silk, in an address at the recent convention of the Southern Hosiery Manufacturers' Association, in Chattanooga, Tenn., Paolino Gerli, president of the International Silk Guild said:

"I believe that silk has hit the low of consumption—it is so low in fact that I think it pretty safe to predict improvement. If the price range is maintained on a reasonable basis, with the strong promotional effort that the Silk Guild will be able to initiate next year, we ought to be able to regain some of the lost ground in the fabric market and to open for it new avenues of consumption."

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Current Rayon Data

Key rayon prices and statistics follow:

Prices	Aug. 1, 1936	July 1, 1936	Aug. 1, 1935	Aug. 1, 1934
Viscose process				
75 denier (18-30 fils.)	$0.90	$0.90	$0.87	$0.90
100 denier (40 fils.)	.79	.79	.76	.75
150 denier (40 fils.)	.60	.60	.57	.55
Acetate process				
150 denier	.60	.60	.60	.70
Cupra. process				
150 denier (112 fils.)	.65	.65	.60	.70

INDICES OF DELIVERIES*

Statistics †	Year 1936	Year 1935
Month		
July	614	433
June	498	381
May	433	274

* Rayon Organon.
† Exclusive of Acetate. Daily average 1923-25 = 100.

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Current Silk Data

Key silk prices and statistics follow:

Prices	Aug. 3, 1936	July 1, 1936	Aug. 1, 1935	Aug. 4, 1934
Crack XX 13/15 white 78%	$1.72	$1.65	$1.57	$1.17
Tram, 5thd Japan 85%	2.41	2.27	2.42½	2.12½
Tram Crack XX 78%	2.31	2.20	2.17½	1.92½
60s-2, spun silk	2.95	2.85	2.75	2.95

Statistics	Imports	Approx. Deliveries	Stocks at Warehouses
May, 1936	26,055	32,087	40,066
June, 1936	26,780	31,437	35,409
July, 1936	31,388	36,658	30,139

World Staple Fiber Production in Thousands of Pounds*

Year	France lbs	%	Germany lbs	%	Great Britain lbs	%	Italy lbs	%	Japan lbs	%	Netherlands lbs	%	Poland lbs	%	United States lbs	%	Total world Production lbs	%	Year
1929	.....		3 500	42	2 600	31	1 700	21	—	0	—	0	—	0	500	6	8 300	100	1929
1930	.....		5 500	75	700	10	700	10	—	0	—	0	—	0	350	5	7 250	100	1930
1931	.....		5 500	61	1 200	13	1 400	16	—	0	—	0	—	0	880	10	8 980	100	1931
1932	1 650	7	6 600	30	2 200	10	9 400	45	550	2	—	0	365	1	1 100	5	21 865	100	1932
1933	2 200	8	9 900	34	2 750	10	11 000	37	963	3	—	0	440	1	2 100	7	29 353	100	1933
1934	4 400	8	16 500	31	3 300	6	22 000	41	4 720	9	—	0	665	1	2 200	4	53 785	100	1934
1935	8 000	6	30 000	23	10 000	7	66 000	49	13 624	10	500	72	715	1	5 000	4	133 839	100	1935

* Courtesy of Rayon Organon

Family Shops "Strike"

Claiming that present prices paid commission weavers by converters in the Paterson, N. J. district, do not allow a living wage, the owners of 200 "family shops," operating 4,000 looms closed their shops July 29 and refused to accept more business unless yardage rates for weaving were increased. The "family shops" are organized in the Silk Commission Manufacturers Association which had charge of the novel "strike." It was announced early in August that converters had raised rates from 4c. to 7½c. per yd., and business relations between the two branches were resumed. Spokesmen for the "family shop" group later stated they would organize the "family shops" in the other silk districts, with the aim of making the advance national.

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Rayon Union Drive

Plans for a drive to organize 55,000 workers in rayon yarn industry, which drive would start this month, were disclosed July 20 in Washington, by officials of the Synthetic Yarn Workers' Federation and the United Textile Workers of America. It is understood that the movement, so far as concerns the viscose branch of the industry, will be based on three demands: (1) hourly and piece-work wage increases to be adjusted after rates are equalized; (2) a 5c increase on all hourly rates and a 10c increase on piece work rates; and (3) one week's vacation with pay.

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Industry Briefs

Paolino Tees Off!—Paolino Gerli added another task to his widespread accumulation of responsibilities last month, when he accepted the presidency of a newly-formed Silk Golf League. The league was formed by 55 members of the raw silk trade as the outcome of a very successful golf tournament and dinner at Oakland Golf Club, Bayside, L. I. Other officers of the organization are: S. Sugiyama, of Morimura Arai & Co., vice-president; S. S. Reinhard, of S. S. Reinhard & Co., treasurer, and A. A. Lang, of U. S. Testing Co., secretary.

Resume Rayon Hearing Sept. 9—Following conclusion on July 8 by the Government of its case in the Federal Trade Commission's rayon hearing, the Commission then set Sept. 9 as the date on which the respondent will open.

A new high record for rayon yarn shipments was set in July, the *Rayon Organon's* index rising to 614.

Record Bookings for Fashion Futures—Bookings for the 1936 edition of Fashion Futures to be held Sept. 10 at the Waldorf-Astoria Hotel, New York, have passed the 1,200 mark, according to the Fashion Group announced Aug. 5.

Giant floral patterns in pinkish brown and white on coral ground are shown as effectively exploited in DuPont rayon drapery with matching chair cover. The drapery fabric is Toile de Rae.

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Rayon and Silk Mill News

Carl Stohn, Inc., Boston, Mass., has completed removal of branch plant at Charlotte, N. C., to mill at East Taunton, Mass. Facilities will be provided for employment of about 350 persons at new location. Company will continue branch plants at Hyde Park, Boston, and at Granby, Que., as heretofore.

United Merchants & Manufacturers Inc., have ordered a Lyndon twist-setting box for their Fall River rayon mill.

Hudson Plush Co., 1020 Dearborn Rd., Palisade, N. J., and Norwich, Conn., has leased third floor in former mill unit No. 18 of Clark Thread Co., East Newark, N. J., totaling about 8000 sq. ft. floor space, and will equip for branch mill employing 75 persons.

Tubize Chatillon Corp., New York, N. Y., has plans for group of new building at viscose yarn mills at Rome, Ga., with equipment installation to increase present capacity about 50%. New unit will have a rated output of 5,000,000 lb. per annum, and is estimated to cost over $2,000,000. It is scheduled for completion in 1937. Company will also carry out extensions and improvements in knitting and dyeing mill at Hopewell, Va., with installation of new equipment. Latter program will cost about $500,000. Financing has been authorized for the work. Robert & Co., Atlanta, Ga. are the engineers and architects. Work will begin about Sept. 1. New twisting, spinning and other machinery will be bought.

Stone Silk Mills, Ogdensburg, N. Y., has installed additional equipment and 158 looms are now in operation.

Cetwick Silk Mills, Inc., Asheboro, N. C., has completed an addition to the plant made necessary by increasing business.

Burlington Mills, Greensboro, N. C., have ordered two additional Lydon twist-setting boxes.

Duchess Fabrics Corp., Statesville, N. C., has constructed an addition to the plant measuring 80x50 ft., adding one-third more space to the present plant.

Duplan Silk Corp. has ordered three Lydon twist-setters for its Berwick and Kingston, Pa., mills.

Midvalley Silk Co., Peekville, Pa., has installed a Lydon twist-setter.

Georgetown Silk., Wilkesbarre, Pa., which recently leased a plant from Durham (N.C.) Hosiery Mills, announces that the plant was ready to be put into operation in August, employing 40 persons.

Roanoke Weaving Co., Vinton, Va., will have its 240x250 ft. building completed by Sept. 1.

J. P. Meehan, Vancouver, B. C., is at head of project to construct and operate a large rayon mill in vicinity of the city and is negotiating with the Board of Aldermen for power supply from municipal Cheakamus development. Plant will comprise several one- and multi-story units, and is estimated to cost close to $1,500,000, with equipment. Facilities will be provided for employment of about 1000 persons. Vancouver Civic Utilities Committee is interested in the enterprise.

Dominion Textile Co., Ltd., with head office at Victoria Sq., Montreal, Que., is proceeding with expansion of rayon dyeing and printing facilities at its plant in Magog, Que. The sum of $250,000 has already been expended.

Patons & Balwwins (Canada), Ltd., Roselawn Ave., Toronto, Ont., have awarded the contract for the erection of extensions, costing $140,000, to consist of two additional stories on the present plant.

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Rayon and Silk Financial

Starr Silk Co., Brewton, Ala., recently organized to take over and operate former local plant of Brewton Silk Mills, Inc., closed for a number of months, is developing full capacity at the plant, giving employment to 125 operatives.

Harris Mill, Putnam, Conn., vacated 12 years ago by the old Hammond, Knowlton, Heminway Silk Co., and unoccupied since, has been razed following failure of efforts to sell or lease the property.

Edward Bloom Co., New London, Conn., which recently closed its local plant for the stated reason of "excessive taxation," has also closed its mill in Putnam, Conn., for the season and is planning to sell its non-manufacturing property in the latter town. The New London plant was turned over to a bank in lieu of a $100,000 mortgage.

Norwalk (Conn.) Silk Co., owned by Nathan Perlman, sustained damage of $2,500 when fire in the basement set off sprinklers in the shop which damaged stock.

Cheney Bros. Co., South Manchester, Conn., is preparing to move the cravat department and winding operations of the throwing department from the "ribbon mill" to other buildings. The ribbon mill itself will be vacated and placed on the market, as was the spinning mill a year ago.

Mason Silk Co., Winsted, Conn., has filed notice of increase in capital from $100,000 to $250,000, for general expansion.

Dundee Mills, Inc., Passaic, N. J., have been incorporated with capital of $100,000, by interests identified with the Dundee Textile Co., operating a local mill, and is reported to succeed to latter organization.

Flora Silk Co., Inc., 37-24 Twenty-fourth St., Long Island City, New York, has taken title to local four-story mill, 85x220 ft., heretofore occupied under lease, and will use entire structure for operations, including dye works.

Old Colony Silk Mills Corp., New Bedford, Mass., had its equipment recently sold as a round lot to Simon & Linderson of Fall River, for $20,000.

E-Z Mills, Inc., Hoosick Falls, N. Y., has vacated its plant and a rayon concern from New York City will start production with 50 machines on Dec. 1.

American Enka Corp. reports for the year 1935 a net income of $556,215 against $151,087 in 1934. F. H. Van Vlissingen, president, attributes the gain to increased volume and improvement in manufacturing methods which he said more than offset the fact that 1935 prices were below those of 1934.

Williamsport (Pa.) Silk Co. has filed notice with the secretary of state, changing its corporate name to the Williamsport Textile Corp.

Joy Silk Mills, Inc., Hartsville, S. C., capitalized at $50,000, has been chartered to buy, sell and deal in the manufacture of silk, rayon, cotton and other yarns and fabrics. The officers include S. C. Gilbert, president; H. P. Southerland, secretary.

TEXTILE WORLD'S

Knit Goods Digest

THE price antics in women's full-fashioned hosiery were partly responsible, we are sure, for New York's record heat wave. Or at the very least, they reduced the resistance of many people, including the writer.

As we get it, the story goes like this: Certain manufacturers of branded lines, under pressure from retailers reduced prices to cut the differential between branded and unbranded goods; manufacturers of the latter followed suit, as did the remainder of the branded-hosiery firms. The result was price-cutting in the face of a strong statistical position and a rising silk market.

The net effect on the two groups is still doubtful. Our hunch is that neither will gain by it, the only beneficiary being the retailer. Whether that is correct or not, however, one moral stands out from this hot-weather tale: Any one who starts to cut prices should do so with the full realization that the little game is apt to go almost anywhere. Other people always want to play—and there's no way of telling where it will end. If the starter knows those facts of life, and still goes ahead, why then no one should begrudge him his fun. —*Editor.*

Hosiery Price Cut Brings Buying Spurt

The break in hosiery prices on women's full-fashioned which came as a surprise to the market last month, continued to spread until at the end of July virtually all branded and unbranded lines were selling at lower levels. On most of the branded lines prices were cut 10 to 25c per doz. on low end merchandise while on a few of the highest grades the rates were reduced as much as $1.90 per doz. The minimum was fairly well established at $5.75 to $5.80. Manufacturers of unbranded hosiery for women found their levels tending to settle at $5.50 per doz. though some had let their minimum drop to $5.25.

The reduction in unbranded hosiery has upset the aims of the branded hosiery manufacturers who sought to narrow the differential between the two branches and thus get some of the demand which had been going to the unbranded lines.

Manufacturers frankly admitted at the end of July that the cut was proving a sort of "Alice-in-Wonderland" proposition, inasmuch as raw silk continued its strong position. The one bright feature, branded mills spokesmen stated, was that the price cut had accellerated buying and they looked for an exceptionally good August. Belief was expressed that the price cut would result finally in a wider distribution of branded goods; this was based on the contention that $5.25 is below-cost for unbranded and that the latter will find themselves compelled to return to the $5.50 minimum.

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Experts Assemble Hosiery Tariff Data

With the filing by the National Association of Hosiery Manufacturers of a petition for protection against low-priced cotton hosiery imports, the long-pending hosiery tariff issue is now officially before the U. S. Tariff Commission. Representatives of the Commission last month began studying the issue with a view to supplying data on which a decision might be reached. The scope of the problem is shown in an article in the *Rayon Organon* which emphasizes that much of the so-called cotton hosiery brought from Japan is really made of rayon and that this branch of imports from Japan rose from 644,000 doz. pr., average value 35c per doz., in 1935, to 695,000 doz. pr., average value 30c per doz. in the first five months of 1936.

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Push Costs Study

Reports being circulated this month in the Reading, Pa. district that some hosiery mills there were operating at losses of $15,000 to $60,000 monthly served to spur the costs inquiry which has been instituted by a local citizens' committee. As previously noted, this committee seeks to find some way to offset the trend of hosiery mills from the Reading area to the South. Myron H. Clark, chairman of the committee spent the first part of July in a trip through the hosiery districts of the South gathering costs data which will be compared with the Reading costs data now being compiled.

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KAE Hall Dresses Up

News of interest to those who plan to attend the 1937 Knitting Arts Exhibition in Philadelphia has been received from that city. The exhibition hall which has housed the knitting arts show for many years has gone through a vigorous "dressing-up" that will make it especially attractive next year. The new features include: painting and complete redecorating of floor, walls, pillars of the hall; and construction of a new entrance to the exhibition hall which will make it unnecessary for show visitors to take the long walk through the Commercial Museum. The new entrance is from the right side of the building. Outside the hall at this point the entire street has been widened and surfaced with concrete and tarvia, thus eliminating much of the dust that has bothered exhibitors and visitors at the hall, in other years.

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Hosiery Sales Up 17.8% in Month

The National Association of Hosiery Manufacturers reports that total shipments of all types of hosiery during June, 1936, amounted to 8,846,704 doz. pr. This was an increase of 1,334,153 doz. or 17.8%, over shipments for the same month one year previous. Shipments of all types of hosiery for the first half of 1936 were 5.8% greater than for the first half of 1935.

Total production of all types of hosiery in June, 1936, was 9,478,988 doz. pr., which was 632,284 doz. greater than shipments for the month. The end of first half of 1936 saw a very marked reduction in the stocks on hand, especially in the women's full-fashioned. At the end of January this year stocks of women's full-fashioned were over 1,000,000 doz. pr. greater than at the end of January, 1935, while at the end of June, 1936, the stocks were only 44,110 doz. pr. greater than a year before.

The following table shows shipments by major branches by dozens of pairs:

Type of hosiery	First Half 1936	First Half 1935	Per cent increase 1936 over 1935
Total, all types	55,971,165	52,904,662	5.8
Women's full-fashioned	16,289,217	15,973,903	2.0
Women's seamless, excl. wool	5,943,273	5,229,500	13.6
Men's half-hose, excl. wool	15,887,903	15,364,683	3.4
Children's and infants' hosiery *	2,648,532	2,545,804	4.0
Anklets	11,316,854	10,013,805	13.0
Cotton bundle goods	1,737,830	1,604,426	8.3
Ribbed goods	1,336,889	1,303,745	2.5
Woolen goods †	810,667	868,796	—6.7

* Boys' and infants' socks, children's 5/8 flat and 7/8, boys' golf hose.

† Women's and men's seamless wool, men's golf hose, woolen bundle goods.

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Underwear Prices Rise

A strong booked-up position on underwear and advancing material costs were responsible for increases in underwear prices in July and may necessitate further advances, Roy A. Cheney, managing director of the Underwear Institute, stated at the end of the month.

Many mills have been forced to withdraw quotations on both heavyweight and lightweight lines, according to Mr. Cheney, and to put into effect substantial increases on future bookings. Recent advances on heavyweight lines, range from 12½c on shirts and drawers to 25c on union suits, with other lines advancing proportionately.

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Slide Fastener Styles

The growing use of the slide type of fasteners in textiles was demonstrated at a fashion show held July 16 at the Waldorf-Astoria Hotel, New York, by the Hookless Fastener Co. The event was arranged and directed by Miss Esther Lyman, fashion and merchandising counsellor for the company. Models demonstrated the use of slide fasteners in various types of daytime and evening dresses and exhibits showed this equipment used on underwear, gloves, handbags and other textiles.

Outerwear Drive On; Plan 1937 Swim Week

Promotion continued a highlight of the outerwear picture this month with events following each other rapidly. Shortly after conclusion of "Swim for Health" Week in June, a committee representing the chief swimsuit manufacturers met in New York and made preliminary plans to repeat this event in June, 1937. Reports from stores throughout the country indicated firm prices at the end of the season on beachwear which was credited to the "Week."

Meanwhile, the nation-wide campaign to promote all outerwear started July 7, under auspices of the Knitwear Institute. Miss Diana Johns, fashion consultant has been appointed style director of the campaign. During its first weeks the drive centered on widespread distribution of outerwear fashion literature to the press and fashion authorities. A feature of significance was the interest shown in the drive by yarn spinners; a nationally representative group of spinners met at the Astor Hotel, New York, July 16, and voiced willingness to participate in the drive.

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Industry Briefs

Darn 'em, He Says!—A prominent Washington, D. C., retailer has suggested that mills supply small spools of matching darning cotton with every pair of men's hosiery sold, so that women could repair their men folk's sox without having to shop for matching thread. He proposes that the thread either be sold at cost or given away, and he feels it would be a good sales stimulus.

Extend Hosiery Pact Cancellation—Pending decision on a new agreement to succeed the one expiring Aug. 31, the Full-Fashioned Hosiery Manufacturers of America and the American Federation of Hosiery Workers mutually agreed last month to extend cancellation date.

Call Knit Strike—Charging that the Joint Council of Knit Goods Workers of Metropolitan New York had repeatedly disregarded contractual obligations, the Metropolitan Knitted Textile Association of that city announced July 22, that it would not renew union agreements and instead would become an open shop organization beginning July 27. In reply the joint council called a strike of 7,000 knit goods workers on Aug. 11, asking 20 per cent raise and 35-hr. week.

Hose Standard Effective—The Bureau of Standards announced at Washington, D. C., July 21 that, a representative number of acceptances having been received and no active opposition, the commercial standards for hosiery lengths and sizes would become effective on that date. The new standards are classified as "Hosiery Lengths and Sizes CS46-36."

Seek Peace at Ajax—Various efforts were made during July to end the strike which has lasted 15 weeks at Ajax Hosiery Mills, Philadelphia.

Hanes Strike Compromised—In an attempt to end a strike at its Winston-Salem, N. C. mill, Hanes Hosiery Mills Co. announced last month that it would return to the 40-hour week from its previous schedule of 50 hours, with a 10% reduction in pay based on the present scale. James G. Hanes said this divided the cut equally between the mill and the workers. Strikers at first refused the offer, but later a compromise was reached, and plans were formed for immediate resumption of operations.

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Knitting Mill News

Alabama Hosiery Mills, Decatur, Ala., is installing Parks-Cramer air conditioning in its new addition which will double former floor space.

Fort Payne (Ala.) **Hosiery Mill** is building a brick addition to increase production.

Ballston-Stillwater (N. Y.) **Knitting Co.** has awarded contract for addition three stories high, 56x55 ft., for manufacturing purposes.

Dunsboro Knitting Mills, Cohoes, N. Y., has started production of sweaters in a section of the Corliss, Coon & Co. factory.

Parks Hosiery Mills, Inc., Asheboro, N. C., of which D. B. McCrary is president, recently installed several more new full-fashioned hosiery machines.

Elliott Knitting Mill, Catawba, N. C., has purchased 30 additional knitting machines, which will be installed in the new mill.

Hoover Hosiery Co., Concord, N. C., is doubling the capacity of their 51-gauge plant on Kerr Street, and will add additional machines, A. R. Hoover, president, announces. It has sold its 42-gauge plant.

Denton (N. C.) **Hosiery Mills,** recently organized, have begun operations in local plant, with installation of 47 knitting machines on half hose, removed from a mill at Asheville, N. C., to this location.

Whisnant Hosiery Mill, Hickory, N. C., is said to be enlarging its plant by constructing a two-story building, 105x100 ft., which is expected to house the 450 knitting machines now said to be in operation.

Guilford Hosiery Mills, High Point, N. C., have completed a two-story addition, and the installation of 30 new knitting machines.

Silver Knit Hosiery Mills, High Point, N. C., have made extensive alterations at their plant.

Clark Knitting Mills, Rutherfordton, N. C., recently completed installation of a dye plant to use in manufacture of half hose.

Waldensian Hosiery Mills, Valdese, N. C., have installed 20 E. S. color-in-color wrap machines and 20 H. H. P. W. machines. The Pine Burr unit has installed eight new b.f. machines.

Weldon (N. C.) **Cotton Mfg. Co.,** has constructed a new building and installed machinery for a modern dyeing department. Wool sweaters are being manufactured and the dyeing department is for them.

Oscar Nebel Co., Inc., Hatboro, Pa., is closing negotiations for leasing a large fireproof building owned by H. B. McCormac, at Winchester, Va., to be utilized for the manufacture of women's silk hosiery. About 30 machines are to be installed at once.

Blaetz Co., Philadelphia, Pa., recently organized by George Blaetz, previously associated with J. H. Blaetz, Inc., Philadelphia, has begun operations in leased space in building at Allegheny Ave. and Hancock St., and will specialize in infants' hose. Facilities will be provided for initial output of about 1000 doz. pairs per days.

Harry J. Gross and **Harry Lee** of Philadelphia, Pa., have completed negotiations for the operation of a full-fashioned hosiery plant at Panama City, Fla.

Roseglen Knitting Mills, Inc., Sumter, S. C., are installing 40 of the latest models of automatic Scott & Williams spiral knitting machines.

May Hosiery Mills, Nashville, Tenn., is erecting a new two-story building containing 14,000 sq. ft. of floor space and designed to accommodate 100 additional knitting machines, including 30 new Banner wrap machines on misses' anklets. Air-conditioned, the new structure will be constructed entirely without windows, glass blocks serving in their place.

Niota (Tenn.) **Hosiery Mill** has installed ten machines in its new building. Walter Foster will be in charge as manager.

Portage (Wis.) **Hosiery Co.,** has let general contract to J. H. Findorff & Son, 601 West Wilson St., Madison, Wis., for two-story and basement mill addition, 60x118 ft., to cost about $50,000, with equipment.

Knitting Financial

Springfield (Mass.) **Knitting Mills, Inc.,** have been chartered with capital of 100 shares, no par, to operate a mill at Chicopee, Mass. Vincent P. Pessolano is president; Agnes E. Braman, 31 Elm St., Springfield, is treasurer and representative.

National Underwear Co., St. Louis, Mo., is establishing a branch at Little Rock, Ark.

Park Lane Knitting Mills, Inc., Newark, N. J., have been formed with capital of $100,000, to operate a local mill. New company is represented by Harry L. Tepper, 1060 Broad St., Newark, attorney.

H. L. R. Knitting Mills, Inc., Brooklyn, N. Y. have been organized with capital of $20,000, to operate a local plant. New company is represented by Nathan Wald, 1170 Broadway, New York, attorney.

Dunsboro Knitting Mills, Cohoes, N. Y., recently organized, has leased fourth floor in building at Ontario Street and Delaware Avenue. Equipment will be provided for employment of about 100 persons.

S. & P. Knitting Mills, Inc., Long Island City, New York, have been organized with capital of $20,000, to operate a local plant. New company is represented by J. Leon Friedman, 11 West Forty-second St., New York, N. Y.

Finer Full-Fashioned Hosiery Co., Charlotte, N. C., recently formed with capital of $100,000, has leased property near city limits for establishment of new mill. Burgess L. Kenimer and August Nordmann, Charlotte, head the new company.

Penn-Carol Hosiery Mills, Concord, N. C., have purchased the 42-gauge full-fashioned hosiery plant on West Depot Street, Concord, from the Hoover Hosiery Co. The new company has been chartered and will be operated by Gustave Staude and William T. Buck, the latter is president and treasurer of Thomas W. Buck Hosiery Co., Philadelphia.

Jantzen Knitting Mills, Portland, Ore. The entire issue of 7 per cent preferred stock of $100 par, representing $898,000, has been called for Sept. 1 and will be redeemed at $105 and accrued dividend. The firm plans a new issue of $750,000 5 per cent preferred.

Classon Knitting Co., Allentown, Pa., has taken over the five-story building formerly occupied by Post & Sheldon. It occupies 37,500 sq. ft. floor space and has lately added 100 operatives.

Keats & Bowers, Bangor, Pa., has leased and will operate the tricot department of Korn Bros. which includes 16 tricot machines.

Earle Knitting Mills, Inc., 428 South Thirteenth St., Philadelphia, Pa., have leased portion of building at Tenth St. and Washington Ave., and will occupy for local mill.

Pall Mall Knitting Mills, 1217 Spring Garden St., Philadelphia, Pa., have leased fourth floor in building at Third and Cambria Sts., and will use for expansion.

Ellis Silk Hosiery Co., Philadelphia, Pa., the physical assets of which were auctioned last June, may be revived since A. M. Ellis, now president, and Aaron S. Goldberg, treasurer, have acquired the firm's capital stock and stand ready to meet all claims.

Propper McCallum Hosiery Co., in 77B reorganization will present its plan for reorganization in Federal Court, Boston, Sept. 8.

Sport-Wear Hosiery Mills, Philadelphia, Pa., has purchased the land and buildings of the Kirkland Hosiery Mills, New Cumberland, Pa.

White Chief Mfg. Co., has been organized in Philadelphia, Pa., with headquarters at 601 North 3rd St., to manufacture knit goods. Principals are Samuel Seidman and David Seidman.

Ajax Hosiery Mills, Phoenixville, Pa., have resumed operations at plant following shut down since last April, due to labor difficulties. Employment is now being given to over 400 persons.

TEXTILE WORLD'S

Processing Digest

ON page 70 of this issue is an article describing some of the processes now in use for imparting permanent finishes to cotton fabrics. It is certain that this type of finish will be applied, in the future, to an increasingly wide variety and quantity of goods. Whether it proves to be profitable to the finishers depends upon the way in which they merchandise it.

If they permit converters, retailers and consumers to regard it as just another finish, they will find it difficult to get an additional fraction of a cent a yard for their work. If, on the other hand, they educate their customers to the advantages of this treatment, they will find in it the same profit possibilities which members of the Velvet Guild found in crush-resistant velvets brought out last year to sell spiritedly at $1.95 per yd., while untreated velvets were selling at $1.15.—*Editor.*

Report on Earnings In Finishing Industry

A report on hourly and weekly wages in the cotton and in the silk and rayon finishing industries has been released recently by the U. S. Department of Labor. The survey was timed to include three significant pay-roll periods during July, 1933, August, 1933, and August, 1934. These represent, respectively, conditions just before and just after the President's re-employment agreement and some months after the adoption of the codes for the various branches of the industry. The report for the cotton finishing industry shows average hourly earnings of 34.8 c. in July, 1933; 45.4 c. in August, 1933; and 47.8 c. in August, 1934. Average weekly earnings during the same period were $17.40, $16.13, and $16.38, respectively. In the silk and rayon finishing industry average hourly earnings were 50.3 c. in August, 1933, and 59.6 c. in August, 1934. Average weekly earnings in the same periods were $18.25 and $19.32, respectively.

The report points out that there is a wide range of wages in the cotton finishing industry, with a considerable number of employees earning as little as 25 c. per hr. and others as much as 75 c. per hr. It comments also on the fact that earnings in the silk and rayon branch are, almost without exception, higher than those in other branches, this being due in part to the location of the silk and rayon branch in a high-wage region.

New Dyes

General Dyestuff Corp. announces the following new products: Supranol Brown 5R, an acid dye for wool and silk; Celliton Discharge Yellow 5RL, an acetate dye producing dischargeable golden-yellow shades; Indanthren Brown BRA Paste, a vat dye of excellent all-round fastness; Algosol Olive Green IB, an addition to the Algosol range, having excellent to maximum fastness to light; Naphtol AS-DB, a new Naphtol color giving covered brown shades in conjunction with the Bases and Fast Color Salts of the Naphtol AS range; Fast Red FG Base, a new developing component which yields a clear yellowish red of good fastness to light and very good fastness to washing with Naphtol AS-SW; Fast Red GTR Base, a new Fast Color Base which yields a clear, yellowish red of excellent fastness properties on Naphtol AS-ITR; Diazo Discharge Violet BD Conc., a developed color which, when diazotized and developed with Developer A, yields dischargeable bluish violet shades of good fastness to washing; and Acid Alizarine Black RA, a mordant acid color which, when dyed according to the afterchrome method, produces bloomy blacks of a bluish cast.

New Chemicals

Development of a new spot remover is announced by B. F. Goodrich Co., Akron, Ohio. This product is expected to find application in mill work for removal of grease or other stains from fabrics, although it was brought out primarily for home use. The chemical is non-flammable and is supplied in a 5-oz. glass bottle with a unique metal protector cap. A mohair self-feeding brush beneath the cap allows just enough of the liquid to flow through it to do the spotting job adequately.

A new thermo-setting synthetic resin has been announced by I. F. Laucks, Inc., Seattle, Wash. This material, known as Lauxite, is derived from the reaction of zinc chloride, urea, and formaldehyde. Due to the presence of zinc chloride, the material is said to differ radically from the usual phenolic or urea resins. It is stated that Lauxite is dispersible in water, sets in a few seconds at a temperature of 225° F., and is colorless. Uses suggested by the manufacturer include the sizing and coating of textiles.

Stonecutter Mills Building Finishing Plant

Stonecutter Mills Co., Spindale, N. C., is now completing the building, and expects to have equipment installed to start operating by Sept. 1, a modern dyeing and finishing plant for synthetic fabrics. The finishing plant is comparatively small, being designed to dye only about one-fifth of the mill's gray production. A principal objective is to work closely with the converters in the development of new fabrics and to coordinate gray mill and finishing plant processes so as to obtain the best possible results. Other important factors considered by stonecutter's management are the almost constant development and changes in warp and/or filling sizes, which make necessary a close coordination between chemical control of gray mill and finishing mill processes.

No job finishing will be solicited by Stonecutter, and the facilities of the dyeing and finishing department will be offered exclusively to the converters using Stonecutter Mills gray goods.

Dyeing Pile Fabrics

We are informed by Sanford Mills, Sanford, Me., that the method of dyeing pile fabrics described by Frank B. Kilduff, in our June issue, is covered by U. S. Patent 1,698,778, which is controlled by that company.

Softening Agent

A new softening agent for cotton and rayon fabrics has been announced recently by General Dyestuff Corp., 230 Fifth Ave., New York. This product, known as Soromine WF, is said to give a soft, smooth handle to the goods. It can be used in combination with various other finishing agents to produce a

The "Silhouette" raincape offered by Richards, Boggs & King, Chicago. It folds into the small envelope in the girl's hand and is made of rubber. It weighs 2 1-2 oz.

variety of finishes. For producing so-called weighted finishes with high concentrations of epsom salt, addition of Igepon T is recommended to prevent flaking out of the Soromine WF. It is stated that the new softener can also be used as a leveling and penetrating agent in dyeing cotton, rayon, and cotton-rayon fabrics with direct dyes.

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Hydrocarbon Resin

A new hydrocarbon resin, called RH-35, has been developed by R. & H. Chemicals Department, E. I. duPont de Nemours & Co., Wilmington, Del. The new resin is brittle, odorless, crystal-clear and water-white; it has excellent electrical properties, high refractive index, and is highly resistant to heat and light. RH-35 is readily soluble in most of the hydrocarbon solvents, as well as in a variety of other organic solvents. It can be blended to give transparent mixtures, some of which have properties quite different from the constitutent materials. When blended with other resins, increased resitance to water, acids, and alkalis is imparted, and the flow in hot melts is improved. The new resin is believed to have a number of potential applications in the processing of textiles.

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Cotton Converting Rules Fixed by Commission

Secret rebates, false branding of merchandise, and extension of special privileges to a customer with the aim of injuring a competitor are among the prohibitions included in the trade-practice rules which were issued July 20, for the cotton converting industry, by the Federal Trade Commission. The rules previously were considered at meetings held by the Textile Fabrics Association, New York, which, it was said, were attended by representatives of 75% of the volume of all producers and converters of cotton piece goods and mixed cotton and rayon goods. A more detailed report on these rules appears in the Cotton Digest, page 104.

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Processing Briefs

A cotton textile trade practice conference on subject of shrinkage will be held this fall in New York, under authority of the Federal Trade Commission. This permission was granted following application by the New York Board of Trade, acting on behalf of various interests. Production, selling and consumer interests are to be represented at the conference, and efforts will be made to draft rules for elimination of misrepresentation and misbranding of cotton fabrics subject to shrinkage.

United Piece Declines Orders—Announcement that United Piece Dye Works had ceased to accept processing orders on July 22, and intended to close indefinitely because of conditions in the dyeing industry was made in Lodi, N. J., last month. Later it was reported that the firm was considering establishing its business in the south or New England, but that nothing definite had been decided on.

Standard Plays Host—Standard Bleachery & Printing Co. was "at home" to 50 guests July 22, and the guests, who included many New York executives, went through the entire plant. Escorts explained the modern methods of finishing.

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More Paterson Dyers Sign Pact with Union

Prospects for continued labor peace in the piece dyeing industry in the Paterson, N. J., area appeared somewhat strengthened during the month, 50 small firms and five large firms having agreed to renewal of the present contract which expires Aug. 31. However five important firms have not yet signed as we went to press, which lent some uncertainty to the outlook. Equally undecided was the situation in the skein dyeing division, where a few dissenters among dyeing firms were holding up enactment of a two-year agreement. Most skein dyers favored the agreement, the terms of which closely resemble those of the piece dyers' contract.

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Report Findings on Wool-Scouring Process

That the state of wool subsequent to scouring is one of the most important factors affecting fiber breakage and that the alkalinity of pH of raw wool scouring liquors must be controlled in order to produce uniform results are findings reported recently by the British Wool Industries Research Association. The report states that the detergent action of the liquors is dependent on their pH value and that the stability of the scoured wool and its strength are also influenced by the pH value of the final liquor with which it reaches equilibrium. In the first liquor, the aim is to insure that the natural suint emulsifies the maximum amount of wool grease; in the second liquor, the desired amount of the residual grease is removed by the aid of soap and soda; in the third and any subsequent bowls, excessive amounts of alkali are removed from the wool. Mill and laboratory investigations have shown: (1) that provided the pH value of the first liquor containing suint is kept above pH 8 by means of sodium carbonate, its power to emulsify wool grease is at a maximum; (2) that the emulsifying power of the second liquor—the soap solution—rises sharply at pH 10 and more sharply when sodium carbonate is added than when trisodium phosphate, sodium metasilicate, or sodium hydroxide is added to adjust the pH value; (3)that when the pH value of the third liquor is adjusted by the addition of sodium hexametaphosphate, not only does the liquor remove objectionable calcium and magnesium soaps from the wool, but the same operation insures that it is not too alkaline for subsequent processes.

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Processing Plant News

East Lyme Bleachery Co., Flanders, Conn., newly-formed, is starting operations in the former E. Peckham Barber mill, which has been reconditioned and new equipment installed. Cotton goods will be converted into surgical gauze. James J. Brady of Norwich is owner.

Lyons Dyeing & Finishing Co., Fall River, Mass., begins operation Aug. 15 with capacity to handle 40,000 yd. of rayons and novelties daily. F. J. Percapio is president.

Newark (N. J.) Textile Dyeing & Finishing Co., Inc., 56 East Bigelow St., occupying portion of former mill of Kaltenbach & Stevens Co., has arranged for lease of main center unit of this plant, previously given over to silk ribbon production, comprising a four-story structure and three one-story units. Buildings will be remodeled and improved at once, and used for expansion.

Holloway Dyeing Co., 935-37 DeMott St., North Bergen, N. J., has leased space in former plant of Eureka Hose Co., Wilkinson and Arlington Aves., Jersey City, N. J., about 5000 sq ft. floor space, and will remove thither, increasing present capacity.

Garino & Sons Piece Dyeing & Finishing Co., Paterson, N. J., will soon open a new branch mill at Hallville, Conn., where property has been acquired. Equipment from the Paterson plant, particularly that used for the velvet division, is being removed to new location.

Davidson (N. C.) Cotton Mills, Inc., is installing a dyehouse to make colored yarns.

Clark Knitting Mill, Rutherfordton, N. C., has installed a dye plant for its half hose production.

Weldon (N. C.) Cotton Mfg. Co., has installed a dyeing department to handle its new sweaters.

Straus Silk Dyeing Co., Archbald, Pa., has leased a large industrial building on Dundaff St., Carbondale, Pa., and will occupy in near future, following alterations and improvements. Mill will be removed from Archbald to new location and capacity increased.

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Processing Financial

Windsor Print Works, North Adams, Mass., may be sold as part of a plan to borrow $600,000 from the RFC to reorganize the Consolidated Textile Corp. if objections from certain stockholders are overcome. Hearings on the objections began June 26 in New York and were continued July 31. Offer of $300,000 for Windsor has been made by F. K. Rupprecht and associates. An offer of $325,000 came from Mercantile Finance Co., Toronto. Hearing was adjourned to Oct. 5.

Textile Dyeing & Printing Co. of America, Inc., Fair Lawn, N. J., has closed its local mill for an indefinite period.

Passaic (N. J.) Print Works—R. Willett Morrell, Passaic, has been elected trustee in bankruptcy for this company by a group of creditors. William F. La Porte has been acting as receiver since last April.

Lenox Piece Dye Works, Paterson, N. J., was placed in hands of Alexander Jurgensen as temporary receiver on July 22.

Holdsworth & Co., 7 Ontario St., Toronto, Canada, has purchased the piece-goods dyeing and finishing equipment of the Middlesex Mills, Ltd., London, Ont. No decision has yet been made as to the use of the equipment.

TEXTILE WORLD'S

Engineering Digest

VAST quantities of water are used in the processing of textiles and the annual cost of water to the mill is considerable—particularly if the water has to be purchased or if it has to be purified before use. In woolen and worsted mills, for example, the total consumption of water usually runs between 25 and 40 gal. per lb. of goods.

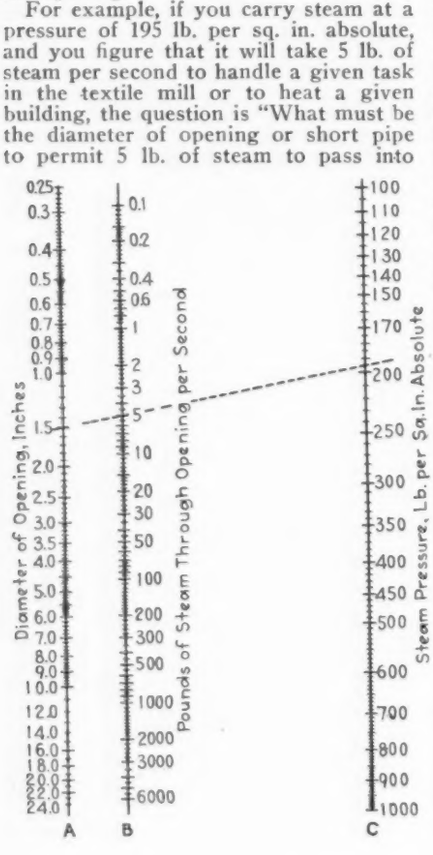
Few mills have any idea of the amount of water used in any one process. Still fewer have any information as to how much is actually necessary. It is certain, however, that most mills could make considerable savings in their water bills if proper care were taken to control the amount of water used in the various operations. Use of the most modern types of equipment, correct treatment of water, and careful training of employees are all factors.

Here is a problem which falls in the province of the plant engineer, and one well worth his time and effort.—*Editor.*

Textile Mill Steam Chart

"What pressure? How many pounds of steam?" The chart in the accompanying illustration answers these questions, and is very useful for making calculations regarding steam flow. Furthermore, it enables determining the diameter of opening or diameter of short pipe for a given condition where there is at least 60% pressure drop through the opening.

For example, if you carry steam at a pressure of 195 lb. per sq. in. absolute, and you figure that it will take 5 lb. of steam per second to handle a given task in the textile mill or to heat a given building, the question is "What must be the diameter of opening or short pipe to permit 5 lb. of steam to pass into the machine or heating coils per second?"



A heating problem is a good one to use, because it usually involves considerable pressure drop. Often the pressure drop is effected through a reducing valve. Where a reducing valve is used, this chart comes in handy for determining the size of valve required. In other words, the opening through the reducing valve must be large enough to conduct 5 lb. of steam from the boiler into the machine or heating coils per second.

The dotted line drawn across the chart shows how easily these problems are solved. Simply run a straight line through 195 lb. per sq.in. (Column C) and then through the 5 lb. steam per second (Column B) and the answer is 1.5 in., (Column A). That is, the diameter of opening, must be at least 1½ in.

There are many other places where this simple chart will come in handy. For instance, if you have soot cleaners on your boilers, the chart will tell you the number of pounds of steam being used per second by the cleaner in cleaning the boiler tubes. If you burn oil and use a steam jet burner, it will give you the number of pounds of steam per second used by the burner—knowing the steam pressure and the diameter of opening. If there is a hole in a pipe, fitting, or elsewhere, and steam is leaking out into the atmosphere, the chart will instantly tell you the number of pounds of steam that are lost per second, and will enable you to compute the loss in dollars per day, week, month, or year. It will tell you the size of safety valve to use, and so on indefinitely.

Inversely, you can determine the steam pressure that will be required to force any given number of pounds of steam through any given opening from ¼ in. diameter to 24 in. diameter. In other words, knowing any two factors in any of the three columns, you can immediately determine the unknown factor in the third column. Pressures, range from 100 to 1,000 lb. per sq.in. absolute.

To convert absolute steam pressure into "gage pressure," simply subtract 15 lb. from the figures in Column C.

—W.F.S.

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Welding Group to Hold 17th Annual Meeting

The tentative program of the 17th annual meeting of the American Welding Society, scheduled Oct. 19 to 23, at Cleveland, Ohio, has been announced. There will be a number of technical sessions and a joint meeting with the American Society of Mechanical Engineers during the week. A large number of nationally known engineers and industrial executives have already been signed up to speak and lead the various discussions. Headquarters for meetings will be at Hotel Cleveland. A Metal Congress Exposition is to be held at the same time in the Cleveland Public Auditorium. J. J. Crowe is president of the society.

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Accident Frequency Reduced in 1935

The textile industry reduced the frequency of accidents in its plants during 1935 but severity increased, as compared with the 1934 record, according to recent reports of the National Safety Council. Reports from 125 textile plants where employees worked 147,863,000 man-hours show that the average frequency rate of 8.28 (number of disabling injuries per 1,000,000 man-hours of exposure) was 22% lower than the 1934 rate. However, the severity rate of 0.67 (number of days lost per 1,000 man-hours exposure) was 14% higher than for 1934. The textile industry now ranks sixth in frequency and severity of accidents among 30 major industries reporting to the council.

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Selection and Maintenance of Electric Motors

The question of motor selection and application from the maintenance viewpoint was recently discussed in an address before the Machine Tool Electrification Forum, East Pittsburgh, Pa., by W. S. Risser, Works Division, Westinghouse Electric & Mfg. Co., East Pittsburg. He went into considerable detail to explain how the 8,200 motors, totalling approximately 50,000 hp., used in the East Pittsburgh works, were selected and installed and how they are now inspected and serviced.

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Welding Stainless Steel

How stainless-steel sheets were welded into a fabricated tank for sulphur dyeing is described in an article, "Fabrication Hints," published in the July issue of *Oxy-Acetylene Tips.* The procedure follows:

The sides and bottom of the unassembled tank each consisted of one single sheet of 16-gage stainless steel of the type known as "disintegration-proof." A ½-in. flange was turned up on each edge by a power press, in order to give a good square corner and to stiffen the

finished tank. Small U-type clamps were employed to hold the edges in place while they were tack-welded at intervals of 2½ to 3 in. along the edge in one direction from end to end. The seam was welded in a similar manner. Edges of the material were then filed clean and free from oxide and the whole seam was painted with Cromaloy flux before the final weld was made.

The next step consisted of laying ¼- and ⅜-in. (thick) asbestos sheets, soaked with water, along the surfaces which would be most exposed to the welding flame. Fitting these pieces of asbestos closely into the corner of the edges to be welded tended to prevent warping of the sheets. A blowpipe tip one size smaller than recommended for working on ordinary carbon-steel sheet of the same thickness was used. Strips of the base metal were used as a welding rod, although not much was needed, as the operation consisted largely of melting down about ⅛ in. of the adjacent flanges. This, incidentally, is the regular recommended practice for making flange-type joints in sheet metal of this thickness, but it will be remembered that rather wide flanges were turned up in order to leave reinforcement in the finished tank. Heat-color marks were readily and permanently removed by application of a regular type of mechanics' hand cleaner and household scouring powder.

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Industry Notes

Those who trek to Dallas to view the Texas Centennial this summer will find many of the exhibits equipped with air-conditioning for the comfort of visitors. Carrier Engineering Corp. already has installed 700 tons of refrigeration in some of the buildings, a number of which will remain as permanent structures.

The satisfactory combustion of anthracite screenings was recently described to members of the Montreal branch of the Engineering Institute by J. R. Groundwater, chief engineer of the Bruck Silk Mills, Cowansville, Quebec. He described how in two years of continuous operation a unit generated 291,527,200 lb. steam from 14,730 tons of fuel.

The F. H. Mills Trophy for first aid work, which is open for competition by the various branches of Dominion Textile Co., Ltd., was won this year by the Magog Print Works Team.

Industrial coal producers and distributors met with fuel engineers, power engineers, manufacturers of fuel burning equipment and others last month at Cincinnati, Ohio, in order to coordinate ideas on coal preparation between shippers and users of fuel for industries. The meeting was sponsored by the fuel engineering division of Appalachian Coals, Inc., a marketing agency for affiliated producers of several eastern States. A number of technical papers on coal preparation were presented by engineering authorities.

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Engineering Trade News

American MonoRail Co., Cleveland, Ohio, manufacturers of overhead handling and automatic cleaning equipment, has opened a southern office at 509 Masonic Temple, Greenville, S. C. Mr. Curran S. Easley is in charge.

H. W. Porter & Co., 825 Frelinghuysen Ave., Newark, N. J., manufacturers of Therm-O-Tile underground steam conduit systems, have appointed the following additional distributors: Canadian Johns-Manville Co., Ltd., Montreal, Canada; Canadian Johns-Manville Co., Ltd., Toronto, Canada; Johns-Manville Sales Corp., White Plains, N. Y.; Smith-Murray Corp., Rochester, N. Y.; P. S. Thorsen Co. of Mass., South Boston, Mass.

Rockbestos Products Corp., New Haven, Conn., announces that increasing business in the Pittsburg and Chicago territories has resulted in the removal of the State of Ohio from the joint jurisdiction of these offices and its establishment as a new territory. John C. Wise, formerly of the New York office, was appointed manager of the new district with headquarters at 1149 Union Trust Bldg., Cleveland.

Worthington Pump & Machinery Corp., Harrison, N. J., announces that William H. Phillips, recently with Harry Pratt Co., Chicago, has rejoined Worthington as power-plant specialist with headquarters in the Chicago office. Mr. Phillips, formerly with Worthington for many years, will specialize on condensers, steam-air ejectors, feedwater heaters and boiler-feed pumps.

Rawlplug Co., Inc., 98 Lafayette St., New York, have announced that R. G. and T. C. Moeller have established Rawlplug Detroit Co. at 14415 Myers Rd., Detroit, Mich., and will handle all Rawlplug products. Rawlplug products consist of a complete line of anchoring devices for all types of material. The company also manufactures a novel Lok-Crowner for locking and concealing bolt, rivet and screw heads.

Taylor-Parker Co., Inc., Norfolk, Va., and Chas. Millar & Son Co., Utica, N. Y., have been named distributors of Republic tubular products of the Republic Steel Corp., Cleveland, Ohio.

Sheffler-Gross Co., sales engineers, Drexel Building, Philadelphia, Pa., announce the election of Thomas J. Kenny as vice-president and director of the company. The company represents power accessory manufacturers.

Babcock & Wilcox Co., Beaver Falls, Pa., announces the appointment of **A. D. Heffron, Jr.,** as district sales manager of the Chicago territory, with headquarters at 1502 Marquette Bldg., Chicago.

Foster Wheeler Corp. and **General Regulator Corp.,** New York, announce that the sales departments of the two companies have been consolidated. The distribution of General regulators hereafter will be made through the branch offices and agents of the Foster Wheeler Corp., and sales headquarters will be at the general offices of the Foster Wheeler Corp., 165 Broadway, New York. C. J. King, long identified with General Regulator Corp., will direct the work of the organization from New York as he has in the past.

Republic Steel Corp., Cleveland, Ohio has appointed three new distributors for its various products, according to N. J. Clarke, vice-president in charge of sales. Equitable Equipment Co., New Orleans, La., will handle Enduro stainless steel. York Corrugating Co., York, Pa., has been named Toncan iron sheet distributor, as has Sheet Metal Mfg. Co., Inc., Stamford, Conn., the latter being a branch of the Brooklyn, N. Y., firm of the same name.

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Engineering Mill News

Dallas Mfg. Co., Huntsville, Ala., is making repairs and improvements in local mill village estimated to cost about $35,000.

Ponemah Mills, Taftville, Conn., is preparing to build a new dam on the Shetucket River to replace one damaged by the March flood. Since the flood the mill has been obtaining part of its power by an overland line of the Connecticut Light & Power Co.

Consolidated Textile Corp., Pelham, Ga., is reconditioning the village houses and other properties.

Cocheco Woolen Mfg. Co., East Rochester, N. H., will make improvements costing $30,000 to $40,000 this summer, including replacement of water power with electric generators and concreting of the finishing room floor.

Bigelow-Sanford Carpet Co., Amsterdam, N. Y., has been awarded a bronze safety plaque for its accident prevention record during 1935.

Borden Mfg. Co., Goldsboro, N. C., has had its two mills connected by a steel-framed gangway or bridge over the road. These two mills are separated by a highway.

Cannon Mills Co., Kannapolis, N. C., has approved plans for construction of a new filter plant of 2,000,000 gals. capacity, for service at local mills.

Proximity Mfg. Co., Greensboro, N. C., has asked the City Council for installation of a 30-inch water main from Reedy Fork pumping station to Greensboro, a distance of six miles. Need for an augmented water supply is acute, Hill Hunter, general manager, stated.

Clinton (S. C.) Cotton Mills are having air conditioning units installed by the F-B Electric Co. of Chester, S. C.

Inman (S. C.) Mills is planning extensive sanitation improvements in its village, according to officials.

Arkwright Mills, Spartanburg, S. C., recently completed installation of one of the longest driving belts in the South. It is 206 ft. long, 22 in. wide, and of three-ply thickness. Greenville (S. C.) Belting Co. made the installation.

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New Publications

Corrosion Resistance of Metals and Alloys. McKay and Worthington, Reinhold Publishing Co., 330 West 42nd St., New York. 1936. $7.

This volume, which is an American Chemical Society Monograph, summarizes the currently known facts on corrosion processes and rates. In view of the importance of corrosion-resisting materials in the textile industry, chemists and engineers in that field, as well as manufacturers of textile machinery, should find this book of value—particularly in the fabrication and selection of wet-processing equipment. The authors discuss first the various forms of corrosion and the several corrosives and then consider in detail the behavior of specific metal and alloy groups. The comparatively small amount of space devoted to the specific problems of the textile industry shows the need for further research in this field.

How to Grind Lathe Tool Cutter bits; How to Cut Screw Threads in the Lathe. South Bend Lathe Works, South Bend, Ind. 10c each.

These booklets describe and illustrate in detail the grinding of lathe tool cutter bits and the cutting of screw threads in the lathe. Master mechanics will find them useful.

Boiler Feed Water Treatment. F. J. Matthews; Chemical Publishing Co., 148 Lafayette St., New York. $5.

Changes in boiler design which have been made in recent years have made the treatment of boiler feed water much more imperative than in the past. As a result considerable attention has been given to the subject of water treatment, and a number of new and improved methods have been developed. In this book, the author has collected and correlated much of the information on the subject which hitherto has been available only in the form of pamphlets, articles, research reports, etc. Subjects covered include scale formation, corrosion, foaming and priming, and analysis and routine testing. The primary object of the book is to aid operators of plants which do not have the services of a water chemist, in the solution of their every-day problems.

Worsted Drawing and Spinning; by John R. Hind; Ernest Benn, Ltd., London, England; 8/6.

Written by a lecturer in worsted yarn manufacture at Technical College, Huddersfield, England, this book covers the subjects with which students have to be familiar to pass the examinations of the City and Guilds of London. Hence it is written primarily for students, but it also contains some information on drafting calculations, machine settings, etc., of interest to practical men. Chapters are devoted to such subjects as open, cone, and porcupine drawing; frame and mule spinning; twisting; reeling; winding; warping; yarn finishing; novelty yarns; yarn testing; and production planning.

Latex in Industry, by R. J. Noble, Rubber Age, 250 West 57th St., New York, $7.

In the last few years latex has found a number of important applications in the textile industry. Doubtless there are many more potential uses for it in this field. Dr. Noble's book should be of value to textile men whether or not they are employing latex at the present time. Those who are experienced in handling latex will find detailed information which will be of assistance in perfecting existing methods and in developing new processes. Those who are not familiar with latex may learn, very possibly, that this material can be of service to them in their own mills. After discussing the sources, properties, and compounding of latex, the author devotes fourteen chapters to the industrial uses of latex, including its various applications to textiles. No attempt is made to discuss in detail any one process, but rather to present the basic considerations common to the manufacture of many different articles. At the end of each chapter, however, is an extensive bibliography to guide the reader who wishes further information on any particular subject.

The Japan Silk Year Book 1935-1936; by M. Iketani, proprietor, Iketani Commercial News Service; the Japan Silk Year Book Publishing Office, 40, Wada, Hommoku, Naka-ku, Yokohama; $5.25 (Riotaro Minegima, 1234 Broadway, New York, representative).

This year book is the first work of its kind, in English on Japan. It will find use among textile firms and individuals who are concerned with the silk and rayon industries of Japan. The book has two divisions—raw silk and silk and rayon fabrics. The first is a veritable encyclopedia on silk culture in all its aspects, while the second is an up-to-date compilation of statistics and other data on the development of silk and rayon weaving in Japan. In his preface, the author expresses the hope that the book may serve both "to facilitate business and to promote good understanding between buyers and sellers." He further hopes to improve it materially in the second edition. The book will be helpful for its detailed coverage of all branches of the silk growing industry and for the complete data on exports, labor, research, etc., in the fabric division.

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Columbia Manual of Knitting and Crocheting, by Sarah Barnes, Wm. H. Horstmann Co., Philadelphia. $2.50.

Said to be the only book of its kind available today, this is a clearly written, well-illustrated, beautifully printed guide for the hand knitter or crocheter. One section shows how to form the various types of knitting stitches—stockinette, garter, puri, rib, spider, cardigan, mesh, etc.—and another does the same for crochet stitches—chain, single, double, treble, slip, picot, etc. One chapter explains and illustrates how to fashion garments; that is, how to tailor them in the knitting itself. Others offer a series of helpful hints.

* * *

The following new editions of well-known directories have been received:

Fraser's Canadian Textile Directory; 1936; Fraser Publishing Co., Montreal, Canada.

Lancashire Textile Industry; 1936; John Worrall, Ltd., Oldham, England, 17s.

Silk & Rayon Directory and Buyers' Guide of Great Britain; 1935-6; Harlequin Press Co., Ltd. Manchester, England. 21s.

187 Missing Men!

WE are cooperating with the Grand Secretary of the Phi-Psi textile fraternity, Theodore H. Thomas of 439 Main St., Bennington, Vt., in publishing the following list of 187 men, who, although recorded members of the fraternity, cannot be reached by mail to their last known address, according to Mr. Thomas.

It is hoped that the men themselves or any friend who knows of their location will notify Mr. Thomas directly of their present addresses. The fraternity will soon issue a directory of its membership and it is desired to have the addresses correct.

The names are grouped by chapters in the various textile schools:

Alpha

(Phila. Textile School)

Joseph L. Baker
Adolfo B. Castro
Thomas Corcoran
Charles K. Dillingham
Irving A. Firth
Hallet J. Foster
Charles A. Fox
William James Hall, Jr.
Felix J. Hammerstone
Fred H. Heinrich
Harry S. Henry
Alan P. Hoblitzell
G. Ellwood Houghton
David Wills Hunter
Walter J. Johnson
Paul C. Keys
Gene Miller Knight
Bernard R. Koenig
Leo A. LeFort
Neil Arthur MacDonald
Griffin S. Mackey
Bruno Majer
Frans Merz, Jr.
Richard K. Mitchell
William T. Rankin
Sidney S. Reynolds
John H. Schwehm
Max H. Smith
Frederick R. Stewart
Frederick C. Streckfuss, Jr.
Edward C. Titus, Jr.
Elliott V. Wright
Harold C. Wood

Beta

(New Bedford Textile School)

Elbert V. Adams
John J. Blauvelt
Clifford Brookes
Kenyon H. Clark
George F. Cram
Powhatan F. Harper
Frederick B. Macy
James C. Morrisson
Charles D. Owens, Jr.
Robert Peavey
Charles A. Radway
William J. Sayers
Willard F. Sylvia
Burton C. Sylvester
Ernst C. Sherman
Clifford H. Tripp
John O. Waterman
Charles F. Watkins
Eugene L. Willey
Samuel Francis Winsper, Jr.

Delta

(Bradford-Durfee Textile School)

Reginald A. Butler
Edmund F. Chapman, Jr.
Dr. Art. B. Courtemanche
Theodore V. Deane
Edwin R. Donaldson
Mathew Furlong
Leonard J. Hugnes
Vincent J. Kelley
Joseph Magnino
G. Sherman Monroe
Leon F. Morrissey
Ambrose J. Murphy
John W. Porter
Kenneth F. Remington
Lawrence H. Woolley
James Worton

Eta

(N. C. State Textile School)

James W. Black, Jr.
Gaither C. Briggs
Thomas W. Church, Jr.
Joseph Edward Cooper
Early Andrew Feimster
E. A. Feimster, Jr.
Edwin Wood Fuller
Ralph Clarence Going
J. H. Haddock
John E. Halstead
David B. Hardin
George R. Howard
Robert O. Lindsay
Joseph H. Mason
Thomas H. Nelson
W. L. O'Brien, Jr.
Peter W. Patton
David Alexander Purcell
Henry E. Fufty, Jr.
Marion Kirk Sanders
R. H. Smith
Edwin G. Speir
Howard J. Spry
J. H. Warlick
Frank M. Williams
William P. Wootten

Gamma

(Lowell Textile Institute)

Carl E. Brainerd
Hugh Bradshaw
Herbert W. Brinckerhoff
Robert Burns
Alan Alexander Atkinson
Joseph B. Crowe
Alfred C. Eberstaller
Roland Napoleon Genest
Lawrence W. Guild
John A. Harrington
James A. Irvine
Leo E. Leonard
John M. McArthur
James H. Manning
Arthur Smith Millman
Arthur Lee Morrill
Karl Remick Moore
Howard A. Morrill
Albert F. Musgrave
Lester E. Parker
Herbert B. Perry, Jr.
Roscoe O. Roberts
David L. Ryan
Millard K. Ryan, Jr.
Frank M. Sanform
Ehrich E. M. Schreiter
Laurel M. Skofield
Andrew S. Waterman
Harold J. White
William E. Wright
Anthony Joseph Urbanetti

Iota

(Clemson Textile School)

James Carlisle Attaway
James C. Ballard
John Louis Bell
John L. Bell
J. C. Childers
Roy Fant Comer
T. I. Dashiell
Thomas Earl Dill
W. W. Friday
Harold Edward Johnson
James McD. McLeod
Charles E. Mullin
John R. Thode

Kappa

(Texas Technological College)

James Harrell

Theta

(Georgia School of Technology)

Judge Wesley Bearden
Edgar R. Blount
Charles C. Cayce
George D. Coffee
Fred Adams Daniel
Wm. Young Conn Dean
William N. Iulaney
Harrison Hyman Field
John M. Forrest
Myles Wade Fletcher
James U. Horne
Tarik M. Ismet
Ernest Charles Kontz, Jr.
Hon. Warren Cavender Magill
James Monroe McCathern
Henry C. Nickols
Henry R. Pund, Jr.
Wallace T. Jackson
Curtis Hayden Rankin
Wm. T. Strozier
Wm. E. Williams

Chapter Unknown

Roger Pryor Allison
Boggs C. Andrews
J. M. Ballentine
Carl Andrews Boggs
Adolph Bovoso
G. B. Deadwyler
G. B. Dorn
R. C. Edwards
Arnold S. Freeman
Henry Clinkscales Hoffman
T. J. Howard
R. F. Jenkins
Edgar H. Jowett, Jr.
Cary Harward Lodal
Julius Jones Love
Marcel Lussier
M. W. Mayes
Ferdinand Albert Sauter
O. C. Shedd
John Cramp Sullivan
Edgard C. Titus
H. W. Tomlison
J. V. Walters
Joseph Parker Walton
W. W. Webb
Edward White, 4th.